THIRD PARTY MAINTENANCE

IN EUROPE 1987 - 1992

INPUT

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THIRD-PARTY MAINTENANCE IN EUROPE

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Customer Service Programs in Europe (CSPE)

Third-Party Maintenance in Europe

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Abstract

This report contains the results of research conducted by INPUT during 1987 into the third-party maintenance market in Western Europe, produced as part of INPUT's Customer Service Programme - Europe (CSPE).

The report examines both user and vendor perceptions of TPM and forecasts the growth of the market in the six largest country markets, France, Italy, the Netherlands, Sweden, the UK, and West Germany, for the period 1987 to 1992. In addition, a forecast for the rest of Europe is also included.

Other topics discussed in this report include market evolution, pricing, competition, and fourth-party maintenance. Profiles of 59 European TPM companies are also given.

This report contains 142 pages including 86 exhibits.

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I

Introduction

I

Introduction

A

Objective and Scope of the Report

This report examines the forces currently shaping the European markets for third-party maintenance (TPM) and forecasts growth to 1992. The countries covered in this report are: France, Germany, Italy, the Netherlands, Sweden, and the UK, the six largest individual country TPM markets.

The TPM market has traditionally been defined as a maintenance service provided by a company which is neither the manufacturer nor the end user of the data processing installation. Manufacturers have now begun to enter the TPM market, creating more competition and forcing TPMs to offer high-quality service with pricing advantages over the manufacturers.

TPMs have to closely monitor manufacturers' involvement in this market and establish aggressive marketing policies promoting the TPM's unique selling propositions of single- source maintenance and maintenance of any hardware item irrespective of vendor.

B

Methodology

The research for this study was conducted between June and August 1987 as part of INPUT's 1987 Customer Service Programme - Europe.

Vendor data was obtained by face-to-face and telephone interviews with 65 vendors of TPM services throughout Europe. User data was obtained as part of INPUT's 1987 annual report on the customer services market and is based on the responses of 1,294 European DP managers.

C

Report Structure

The remaining chapters of this report are organized as follows:

- Chapter II contains the Executive Overview providing a concise summary of the whole report.

- Chapter III provides a forecast for the individual country markets for the period 1986 to 1992.

- Chapter IV looks at the strategic industry directions that INPUT observes in the TPM markets in Europe.

- Chapter V examines user views of TPM.

- Chapter VI contains conclusions and recommendations for TPM vendors' future plans.

- Appendices A through F give profiles of TPM vendors in France, Italy, the Netherlands, Sweden, the United Kingdom, and West Germany.

- Appendix G reconciles INPUT's 1987 and 1986 forecasts for the European TPM market.

II

Executive Overview

II

Executive Overview

This executive overview is designed to provide a brief summary of the entire report. This aids the busy reader in quickly reviewing the key research findings and thus gaining an overview of the complete report. Areas of specific interest can then be studied further by direct reference to the body of the report.

A European TPM Market $1.4 Billion by 1992

INPUT estimates that the total Western European market for TPM amounted to $510 million in 1986 and is expected to grow 25% to reach $635 million in 1987 (see Exhibit II-1).

EXHIBIT II-1

EUROPEAN TPM MARKET $1.4 BILLION BY 1992

1986 TPM Market:	$510 Million
AAGR 1987 to 1992:	18%
Largest Market - UK:	$206 Million
Fastest Growth - Italy:	22% AAGR

Over the forward five-year period to 1992, INPUT forecasts that the current rate of growth will slow. Over this period, INPUT predicts an average annual growth rate of 18% to achieve a total market of $1,450 million by 1992.

The UK market, estimated to have reached $206 million in 1986, remains the largest single country market in Europe. Its share of the total market will, however, fall from 40% in 1986 to 35% by 1992.

The Italian market is forecast to be the fastest growing. Its growth rate to 1987 is expected to be 38%, although this exceptionally high rate is expected to fall away quickly to an average annual growth rate of 22% between 1987 and 1992.

B Country Market Growth Patterns

Over the past few years, TPM usage has steadily increased, notably in the UK, France, and the Netherlands (see Exhibit II-2). Cost, convenience, and efficiency are significant justifications for TPM use as seen from the user's perspective. However, vendors typically tend to place emphasis for their growth on the provision of single-source maintenance on multi-vendor sites, a factor which was rated of little significance by users.

EXHIBIT II-2

COUNTRY MARKET GROWTH PATTERNS

- Most Receptive - UK, France, Netherlands
- Most Resistant - West Germany
- Growth by Acquisition
- Expansion of Current Services:
  - Range of Equipment
  - Maintenance Management

West Germany emerges as the most resistant market to TPM as there is an apparently high level of satisfaction with vendor maintenance and a more prevalent belief than in most markets that the manufacturers' service offers advantages over that from a TPM supplier.

INPUT anticipates that TPM market growth overall will slow as the natural limits of the market potential are reached. The TPM markets' finite limits will be determined by vendor commercial policies and marketing success as well as by user attitudes.

Within this scenario of slowing growth, INPUT anticipates an increase in acquisition activity. Larger TPMs will attempt to consolidate their position and build the critical mass necessary to compete against the vastly greater resources of the manufacturers. Smaller TPMs can expect to find the market increasingly difficult and will have to secure firm niches in order to survive.

The larger TPMs, either through organic growth or through acquisition, will expand the range of services that they offer. These will not just be limited to the support of more ranges of equipment but are likely to extend to the provision of "professional services" like consultancy and training and the "management" of the total maintenance requirements of the user.

C
Top 10 European Independent TPMs

Exhibit II-3 lists the top ten independent TPM vendors in Western Europe ranked by their 1986 revenues calculated in US dollars.

EXHIBIT II-3

TOP TEN EUROPEAN INDEPENDENT TPMS 1986 REVENUES ($M)

	VENDOR	COUNTRY OF ORIGIN	1986 REVENUE $M	MARKET SHARE* (Percent)
1	DPCE	UK	36.0	7.0
2	CFM	UK	22.0	4.3
3	ECONOCOM	FRANCE	18.0	3.5
4	BELL CANADA I.	CANADA	17.2	3.3
5	GEVEKE	NETHERLANDS	16.9	3.0
6	TELUB	SWEDEN	15.5	3.0
7	EXTEL	UK	15.4	2.5
8	IBI MAINT	ITALY	12.9	4.3
9	CIESSE	ITALY	11.5	2.3
10	SPECTRAL	FRANCE	11.4	2.2

*Total Western European Market in 1986 $510M

The largest independent company, DPCE, has nearly a 7% market share with $36 million revenues in total across Europe. The ten largest companies collectively have revenues that account for just over 30% of the total market of $510 million in 1986; the top fifteen companies account for just over 40% of the total market. It can thus be seen that no one company has yet managed to build a really dominant position on a European basis.

The countries of origin of these leading vendors are relatively widely spread, including one company owned by Bell Canada International. The UK is represented by three companies. Interestingly, Italy is represented by two, testimony to the heavily skewed distribution of revenues amongst companies in that market. France is also represented by two companies, and Sweden and the Netherlands have one representative each.

D TPM Vendor Perspectives

In nearly all instances vendors cited TPM companies as their primary competition and generally viewed the manufacturers as a lesser threat to their business. The relatively rapid growth of the TPM business leads most TPM companies to be optimistic about their future prospects; competition is not in general viewed as an inhibitor to this progress, as shown in Exhibit II-4.

EXHIBIT II-4

TPM VENDOR PERSPECTIVES

- Competition:
  - Other TPMs
  - Manufacturers
- The "Independence" of TPM
- Inhibitors
  - User Resistance
  - Manufacturer Policy

Although TPMs recognize the increasingly active role of the manufacturers in proactively defending their revenue base through the development of an "independent maintenance" capability, they remain confident that this will not impact their business growth in the long term. This is based on the belief that there exists a growing minority of users who want an independent source of maintenance service. They believe that users recognize that the manufacturer will always have a vested interest in seeking to install their own equipment through the door opened by the service arrangement.

Whilst the overall perspective of vendors is bullish towards the prospect of market growth, they do recognize inhibitors to their progress which can broadly be categorized as falling into two main groups:

- User resistance.
- Manufacturer policy.

User resistance is undoubtedly strong in some countries, notably West Germany, and embodies such concepts as mistrust of TPM and manufacturer loyalty. Manufacturers' policies with regard to the supply of spare parts and information and warranty policies are of considerable concern.

E

TPM Selection Criteria

A summary of TPM selection criteria is shown in Exhibit II-5. The most frequently mentioned reasons for the selection of TPM in INPUT's European user survey were, respectively:

- Cost.
- Convenience.
- Efficiency.

Naturally, the pattern of responses varied between different country markets. For example, in the UK, generally considered to be the most developed TPM market in Europe, cost was only the third most frequently given reason.

In contrast to this overall user rating, TPM vendors professed "demand for single-source maintenance" as the strongest growth factor for their business. The user research revealed that this was the least mentioned factor. However, convenience, the second most frequently mentioned individual reason, could be interpreted to imply the benefits of single-source maintenance.

EXHIBIT II-5

TPM SELECTION CRITERIA

REASONS FOR USING TPM
- Cost
- Convenience
- Efficiency

REASONS FOR NOT USING TPM
- Satisfaction with Manufacturer Service
- Lack of Awareness
- Perceived Manufactuer Advantage

The research supports, the contention that cost saving is one of the key factors in initially establishing TPM and secondly, that other factors, notably convenience and efficiency, become more important as the market matures. Vendors must therefore be careful to continually re-examine their service offerings against changing and developing user needs.

The reasons professed for not using TPM can be even more important; the most frequently mentioned were:
- Satisfaction with manufacturer service.
- Lack of awareness of TPM.
- Perceived service advantage of the manufacturer.

Again, the pattern of response varied between different country markets. For example, lack of awareness of TPM was a significant factor in Italy and Sweden (mentioned by about 30% of respondents) but much lower in the more mature UK market (5%).

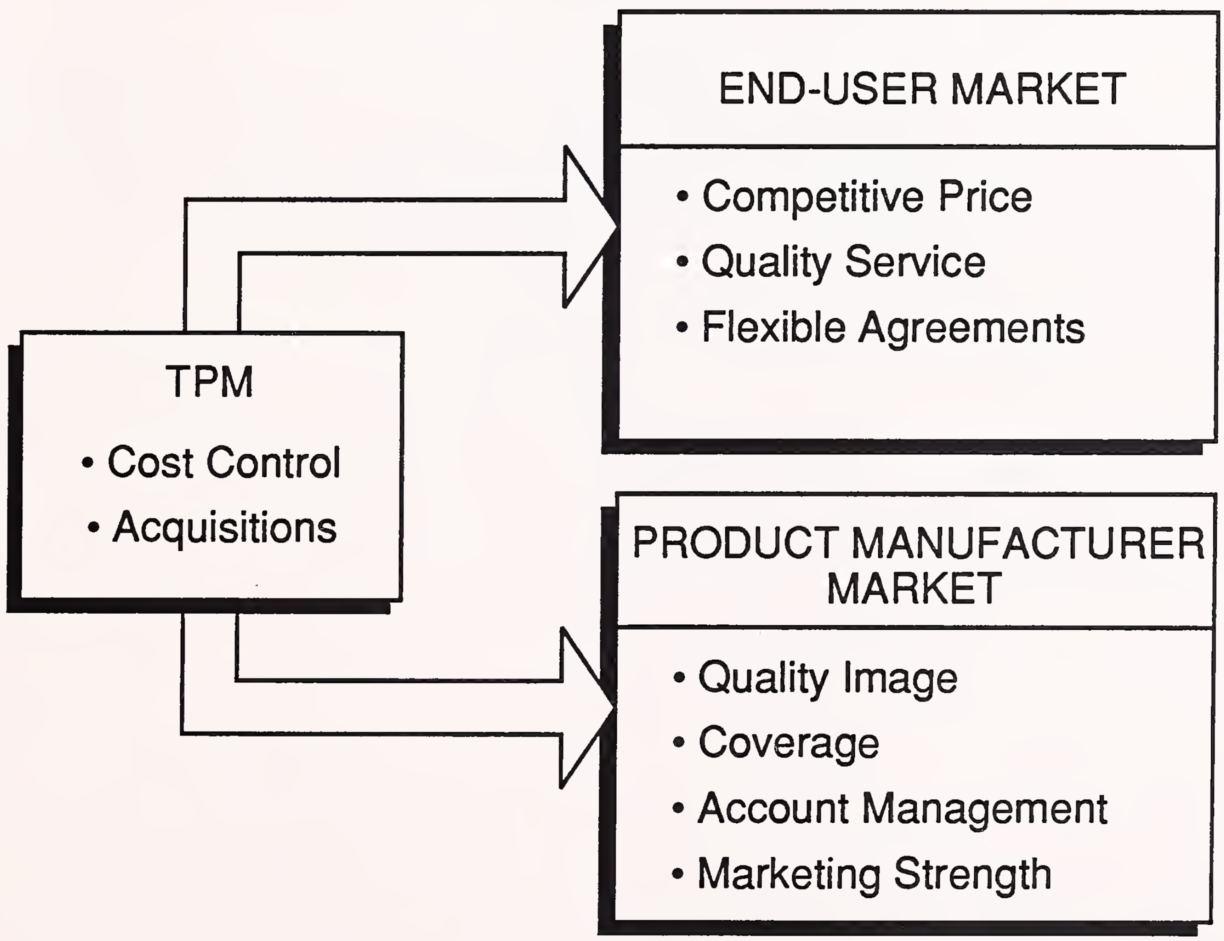
Such factors as the perceived financial weakness of TPMs, and fear of an adverse supplier response were mentioned infrequently by users.

F Keys to Success: Price, Service Quality, and Marketing

Exhibit II-6 provides a diagrammatic representation of two key market strategy approaches open to TPMs. The first is to target the conventional end-user market, emphasizing competitive price, quality service, and the flexibility to meet individual client needs.

EXHIBIT II-6

KEYS TO SUCCESS: PRICE, SERVICE QUALITY, AND MARKETING



The second strategy is to target the development of the product manufacturer market. This market is expected to develop to support manufacturers who for reasons of geographical coverage or for other commercial reasons will seek a third party to maintain their equipment in the field.

Quality image, the ability to support a product across a number of individual country markets, strong account management, and marketing strength will all be important attributes of the TPM vendors who succeed in this approach.

Whichever of these basic approaches is adopted, TPMs must further consider the strategies to adopt to achieve their commercial aims; for example the achievement of critical market position through acquisition or merger, or the selection of a niche position.

Further developments such as the offering of service on non-computer equipment that retains the necessary commercial synergy and the offering of non-hardware maintenance services such as professional services and software support, provide other opportunities for TPMs.

Finally, whatever strategy is adopted, vendors must pay close attention to providing competitive pricing, good service quality, and effective marketing. Cost control will be vital in ensuring that the TPM remains profitable in what is expected to be an increasingly tough and competitive market.

III

Country Market Analysis

III

Country Markets Analysis

A

European TPM Market Forecast

This chapter contains INPUT's analysis of the European TPM market. Sections B through G provide analyses of the six largest individual country markets. This section provides an overall summary for Europe including an estimate for all the countries not separately analyzed. These comprise Austria, Belgium, Denmark, Finland, Greece, Ireland, Norway, Portugal, Spain, and Switzerland.

The forecasts have been calculated in the current currency for each individual country. Consequently, they include an allowance for inflation. The assumptions that INPUT has made for inflation in each of the six largest European country markets are as follows:

UK	+ 4.5% per annum
France	+ 3.5% per annum
West Germany	+ 0.5% per annum
Italy	+ 5.0% per annum
Netherlands	0.0% per annum
Sweden	+ 5.0% per annum

Exhibit III-1 shows the US dollar conversion rates used for calculating a consolidated European total for the TPM market.

Exhibit III-2 shows the overall analysis of the TPM market in Europe. It can be seen that INPUT assesses the 1986 market for Europe as a whole at just over $500 million. Growth of the market to 1987 is estimated to be currently running at about 25% overall to give a 1987 estimate of $635 million. INPUT further predicts that growth over the five-year period 1987 - 1992 will be at an annual average rate of 18%.

EXHIBIT III-1

US DOLLAR CONVERSION RATES

CURRENCY	1986
Pounds Sterling	0.68
French Franc	6.86
Deutsche Market	2.14
Italian Lira	1473.50
Dutch Florin	2.43
Swedish Krona	7.08

EXHIBIT III-2

EUROPEAN TPM MARKET GROWTH 1987 - 1992 (US $ Millions)

	1986	1987	GROWTH 86-87 (Percent)	1992	AAGR 87-92 (Percent)
UK	206	243	18	507	16
France	70	87	24	215	20
W. Germany	44	56	26	119	16
Italy	44	61	38	166	22
Netherlands	41	51	25	117	18
Sweden	28	35	25	82	18
Rest of Europe	75	100	33	250	20
TOTAL (Rounded)	510	635	25	1455	18

Growth predictions clearly vary between individual countries. The highest level of growth is anticipated in Italy, where amongst other factors, Olivetti's 65% holding in Ibimaint (Italy's largest TPM) is likely to provide a boost to market growth in the short term. The lowest levels of growth are anticipated in the relatively mature UK market and in West Germany where the highest level of user resistance to TPM is encountered.

The UK is likely to remain the dominant country market. Representing 40% in 1986, it will still account for nearly 35% by 1992 on these growth predictions.

Exhibit III-3 lists the leading independent TPM companies in Europe by 1986 revenues and shows also their percentage market shares. The largest company, DPCE, achieves just under a 5% market share. The top fifteen companies account together for just over 40% of the market.

Appendix G shows a reconciliation between INPUT's current 1987 forecast of the TPM market and that made in 1986. Differences are accounted for by new research made in 1987, differences in the actual performance of vendors compared to forecasts, and re-assessments of market drivers and inhibitors in the light of long-term industry trends.

As a result of INPUT's 1987 research work, we have made significant reassessments of the Italian, Dutch, and Swedish TPM markets. In general, it can also be seen that the six- year average annual forecast growth rates have been downrated for some country markets, notably for France and the Netherlands.

INPUT remains confident that the TPM market will continue to exhibit strong growth overall, on average 18% per annum for Europe over the period 1987 to 1992. It is clear, however, from the country analyses shown in this chapter that INPUT is forecasting a decline in the growth rate during this period. The relative maturing of the market in terms of size and the increasing manufacturer activity to protect and grow their own customer services revenue base are the principal factors behind this. More demanding user requirements will place further emphasis on excellence of service, and the capital base to support a service operation, which will continue to place considerable pressure on the smaller TPMs.

EXHIBIT III-3

TOP 15 INDEPENDENT TPMs IN EUROPE 1986 REVENUES

VENDOR	REVENUE $ M	MARKETSHARE* (Percent)
DPCE	36.0	7.0
CFM	22.0	4.3
Econocom	18.0	3.5
Bell Canada Int'l	17.2	3.4
Geveke	16.9	3.3
Telub	15.5	3.0
Extel	15.4	3.0
Ibimaint	12.9	2.5
Ciesse	11.5	2.3
Spectral	11.4	2.2
ISS	11.2	2.2
MBS	10.3	2.0
Data Logic	10.0	2.0
Metroservice	9.8	1.9
Dataway	9.3**	1.8

* Total Western European Market in 1986 $510M

** In Jan. 87, Dataway was acquired by Bell Canada Int'l.

B

France

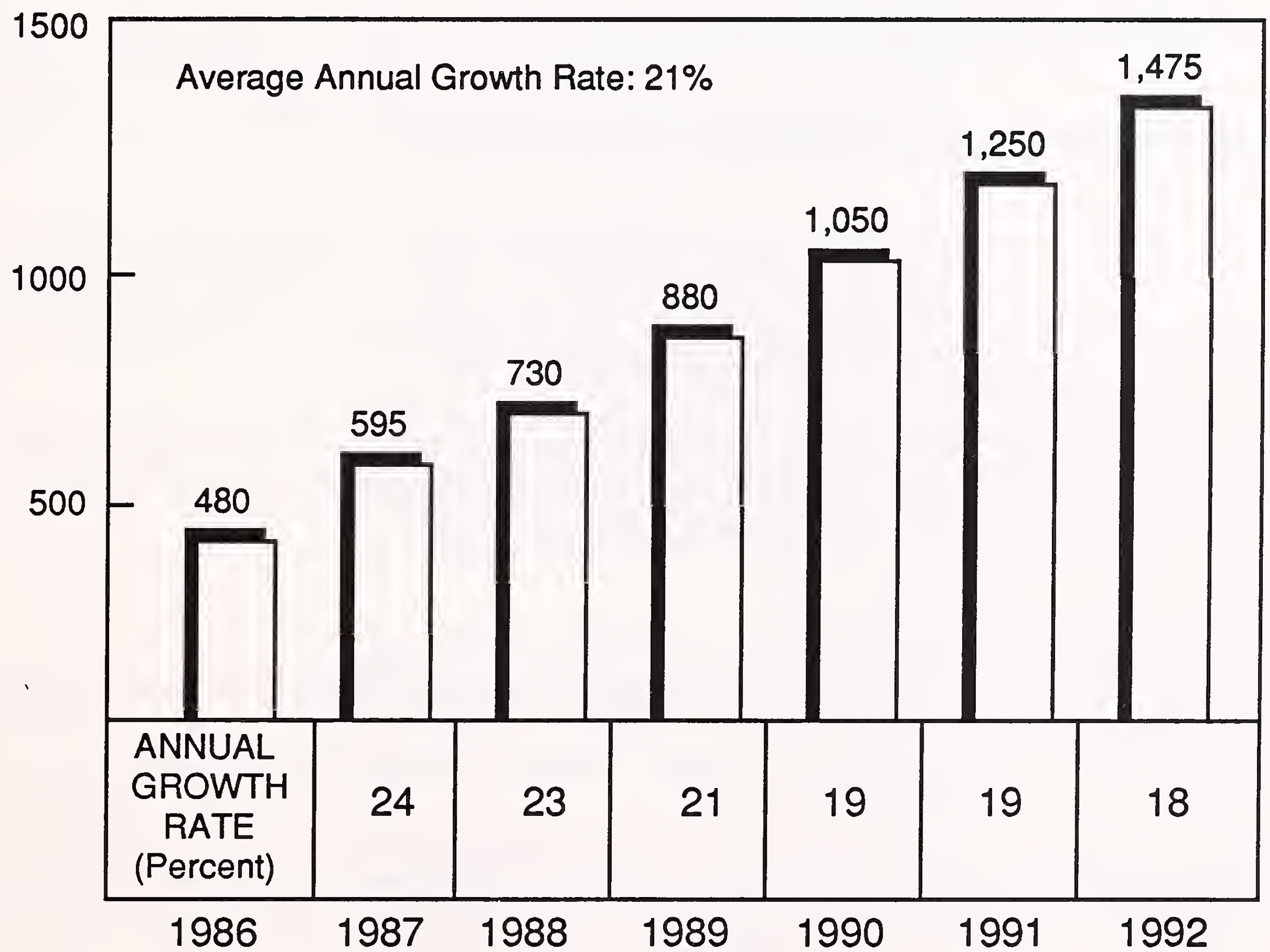
1. Market Development

a. Market Size

As shown in Exhibit III-4, INPUT estimates that in 1986 total revenues earned by TPMs in France were FF 480 million and that by 1992 these will reach FF 1,475 million, representing an average annual growth of 21%.

EXHIBIT III-4

**FRENCH TPM MARKET GROWTH
1986-1992
(FF Millions)**



The French TPM market has in the past been one of the fastest growing in Europe. Although the growth of this market is still not negligible, INPUT forecasts a slowdown in the rate of growth of TPM as a result of tougher competition from equipment manufacturers.

b. Growth Factors

The French TPM respondents noted that the principal element of growth of the TPM market in France has been the increasing user demand for an alternative method of maintenance to the services offered by manufacturers. Quality of service and pricing were the two factors mentioned by the majority of vendors as having promoted this alternative delivery mode.With the increasing reliability of hardware and declining purchase prices, users have come to expect more from their equipment at a lower price.

Another element which has driven the growth of TPM in France is the increasing number of users with multi-vendor installations. For these users, TPM has the advantage of being able to provide a single point of contact for all their maintenance requirements.

This has played an important part in the development of the French TPM market where the use of networks has been increasing at a rapid pace. Network installations are typically multi-vendor environments, and these sites have become prime users of TPM.

One vendor noted that the success of his firm lies in its ability to keep close to users and adapt to their requirements in a way that is more flexible and speedier than manufacturers.

In other words:

- The ability to offer a total solution to all maintenance needs of users.

- The ability to offer a personalized service where users are not just a reference number.

Some comments by French TPM vendors on market growth factors are shown in Exhibit III-5.

EXHIBIT III-5

FRENCH TPM VENDOR COMMENTS ON GROWTH FACTORS

'Price has been a major factor contributing to the growth and acceptance of TPM'.

'Our users come to us because we can offer quality service at an attractive price. Apart from these, TPM service is much more personalised, clients are not just a number'.

'TPMs keep closer to the realities of the market and are more flexible to customer needs'.

'We do what is best for the customer and, more importantly, we listen to what the customer needs and expects from us'.

c. Factors Inhibiting Growth

French TPM vendors are generally optimistic about the growth potential of their market, and see few factors as inhibiting their activities.Vendors, however, are concerned about longer manufacturer warranties, in particular three-year warranties offered by IBM on workstations. This is an issue which TPMs see as a manifestation of protectionist policy implemented by manufacturers to defend their revenue base.

One vendor's comment was: 'Sophisticated users will understand that nothing is given free of charge. If a manufacturer offers a good deal with warranties, it only means that the price of what would otherwise be the price of maintenance is hidden in the price of the equipment itself'.

A second hindering factor which vendors commented on was the attitude of users who still seem to mistrust TPM and prefer to have manufacturers maintain their equipment. This situation is changing as TPMs market their services more professionally. The fact that the French TPM market has experienced considerable growth over the past two years is proof that users are willing to sign maintenance contracts with TPMs.

One respondent pointed out that one problem for the vendors is the French government procurement legislation which gives the right to all government offices not to pay for any services in advance.

This causes a problem for TPMs who typically count on charging clients in advance. Large government contracts are target accounts for most TPMs, but few are in a position to offer support services and accept payments in arrears.

2. Competitive Environment

a. TPM Companies

i) Market Characteristics

INPUT estimates that there are between sixty and seventy TPM firms in France with only the larger firms offering national coverage.

The major independent TPM firms in France are:
- AMTI
- ECS
- Eurotech Services
- Metroservice
- MIS
- SMS
- Spectral
- Tekserv

Exhibit III-6 shows details for the five leading independent TPM companies in France.

The activities of French TPM firms are centered around Paris, which has the highest concentration of computer users in France. Smaller TPMs have found a market niche in different regions of the country, offering services mainly on personal computers and peripherals.

French TPM respondents also noted that they very rarely have difficulties in obtaining spares, as one of the standard practices is to reach agreements with manufacturers to maintain their equipment. By doing this, TPM vendors complement the manufacturers' maintenance activities and benefit from better relations with manufacturers, as well as adding to the credibility of their service with existing and new clients.

EXHIBIT III-6

LEADING INDEPENDENT TPM VENDORS IN FRANCE RANKED BY TPM REVENUE (French Francs Millions)

	REVENUE 1986	NO. OF ENGINEERS	NO. OF SERVICE CENTERS
SPECTRAL	78	120	26
METRO-SERVICE	67	223	20
ECS	48	100	-
MIS.	36	210	38
SMS	35	90	20

ii) Mergers & Acquisitions

MIS is the only company currently active in acquiring other TPMs to expand its user base and revenues. In the course of 1987, MIS acquired the following companies:

- Aramis, a company specializing in workshop (return to bench) maintenance.
- The French maintenance arm of Geveke Electronics, the Dutch TPM firm.
- Bureau Meca, specializing in the maintenance of "Sous ensemble informatique" and heavily involved in the maintenance of ATMs (Bureau Meca was responsible for the maintenance of 4,500 such terminals). The price paid by MIS for this acquisition was reported at 5.5 million French Francs for a controlling interest with an agreement to purchase the remaining shares of the company within a three-year period. Bureau Meca had a revenue of 10.7 million in 1986.

b. Range of Equipment Maintained

Most French TPM vendors specialize in the maintenance of personal computers, peripherals, and terminals. In the past two years, however, companies have moved into the minicomputer maintenance market, enabling them to offer single source-maintenance in multi-vendor environments.

The larger TPMs, notably Spectral and MIS, have specialized in the maintenance of ATMs and EFT-POS terminals. All respondents reflected the opinion that in order to increase their revenues and user base, they will have to move into the maintenance of larger equipment, particularly minicomputers.

c. Services Offered

i) Current Services

Given that the French TPM market is one of the fastest growing in Europe, TPM vendors offer a range of services that are not purely related to hardware maintenance.

The large TPMs all offer consulting services which encompass planning, environmental planning, and installation. Installation is, in fact, a service that is offered by all the vendors interviewed as a standard service offering.

French TPMs believe that one of the factors that has led to increasing user acceptance of TPM is the independent stance taken by TPMs who have concentrated very hard on keeping this position by not selling any equipment. This attitude of the French vendors is in sharp contrast to the Italian TPM vendors who are entering the TPM marketplace on the platform of equipment sales.

Only one vendor interviewed is currently offering software support. This company believes that software support is a commercial necessity in order to attract clients, in particular large accounts. This vendor has remote diagnostic facilities which is mainly used by the field engineers for on-site diagnosis and repair.

ii) Future Services

Although all respondents said that they plan to increase the range of services that they offer in the future, few had clear strategic plans as to what these would include.

One vendor's strategic plan is to increase the range of services offered so that it can truly be seen as a company that manages all the maintenance needs of its clients.

All the French TPM respondents plan to expand their activities in the telecommunications and network sectors in the next two to three years. The number of users in this sector is increasing, and these respondents believe that user demand for TPM in these sectors will increase because these users will typically have multi vendor installations that will require TPM expertise.

d. Competitive Factors

French TPM vendors recognize the fact that TPM is currently a lucrative and expanding market in France. The number of players in this market is quite high compared with some other European countries, and the main source of competition perceived by these vendors are other TPMs.

Manufacturer entry into TPM in the French market is also beginning to create a source of competition, particularly with regards to the increasing involvements of Control Data France in the IBM TPM market and Olivetti-Logabax in the microcomputer, peripherals, and terminals markets.

As already mentioned, however, TPM vendors strongly believe that French users of TPM are attracted to TPM because it represents an "independent" solution. It is because of this that TPM respondents felt confident that there was a continuing and growing market for TPM.

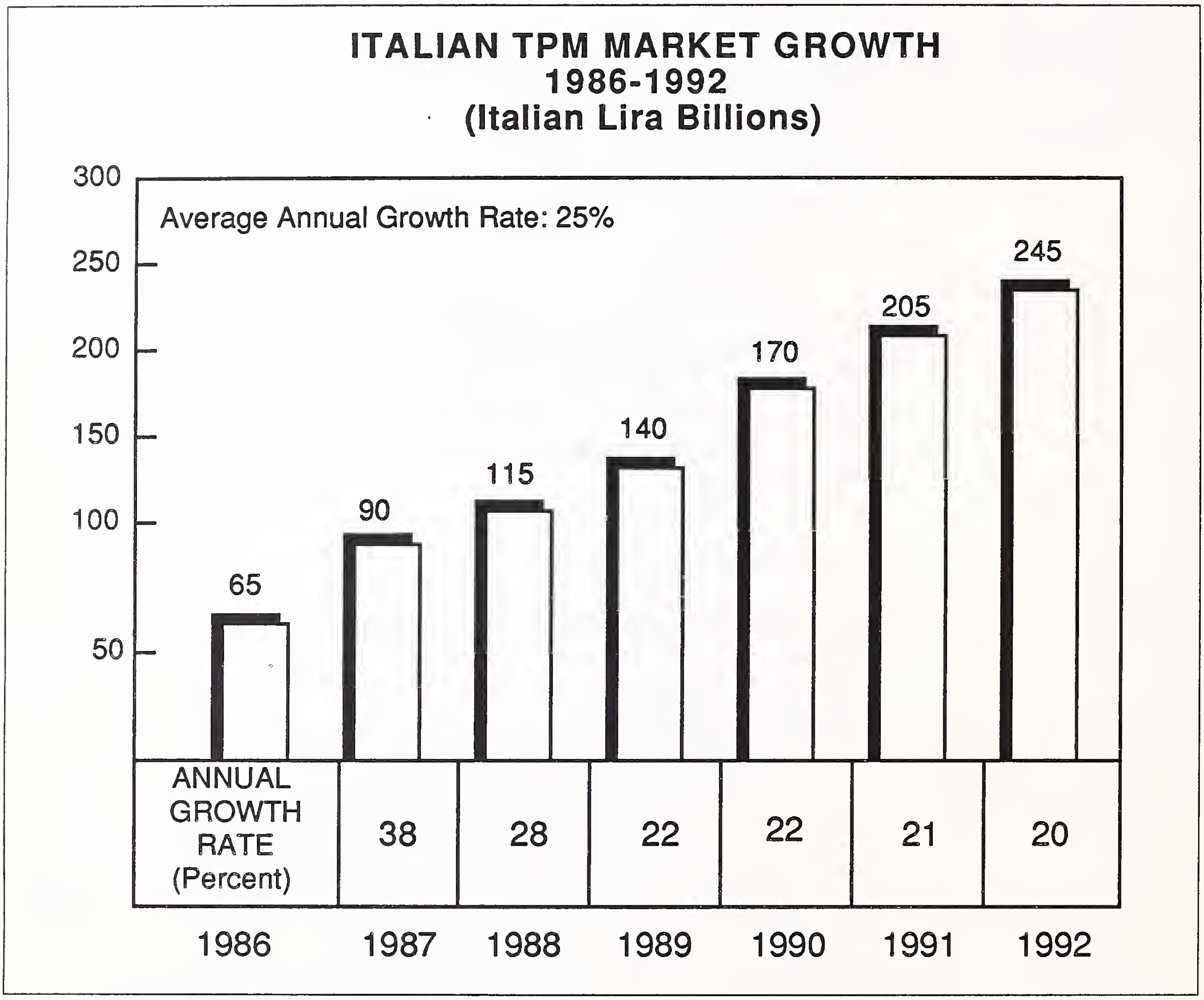
C Italy

1. Market Development

a. Market Size

INPUT forecasts that the Italian TPM market, one of the fastest growing in Europe, will grow at an average annual rate of 25% over the 1986 - 1992 period with revenues totalling Lira 65 billion in 1986 and reaching Lira 245 billion in 1992, as shown in Exhibit III-7.

EXHIBIT III-7



High growth is currently being experienced in the market, to a large extent driven by the interest that Olivetti has taken in Ibimaint and the consequent transfer of Olivetti maintenance into the TPM arena.

There are currently approximately fifteen companies offering TPM services in the Italian market, the majority of which are small dealers supporting low ranges of equipment at a local level. This indicates that the Italian market is still at an early stage of development with TPM being a fringe activity for most companies.

The larger companies who have already specialized in the maintenance of a wide range of equipment, i.e., mainframes to peripherals range, are the

highest revenue earners. Ibimaint, the largest Italian TPM vendor, for example, has a nearly a 30% share of the total TPM market.

b. Growth Factors

Italian TPM companies believe that users are the principal driving force in the growth of TPM in that country. According to the respondents, users have perceived the advantages of TPM, in particular:
- Pricing.
- Availability of local service.
- Availability of an alternative to the manufacturer if needed.

Italy is the only European market where "lower than manufacturer" pricing is seen by vendors as the principal factor driving the growth of TPM. Each respondent also noted that in today's competitive environment the provision of a service that offers a price advantage must also be accompanied by high quality of service and fast turnaround.

One respondent pointed out that approximately half of the field engineering force engaged in TPM in Italy are ex-IBM engineers. These engineers have been well trained and have a reputation for delivering high-quality service.

Vendors are thus able to highlight the professionalism of their staff to potential users. Although there has been the odd criticism from users that a good IBM engineer would stay with IBM, the fact is that these engineers are lured away by being offered higher salaries. This factor has enabled vendors to promote their individual positions, and altogether it has helped the growth of the market as more users welcome and accept the existence of TPMs.

Exhibit III-8 shows some further comments on growth factors made by Italian vendors.

EXHIBIT III-8

ITALIAN VENDOR COMMENTS ON GROWTH FACTORS

'Users see TPM as an alternative method for maintenance'.

'TPM offers attractive maintenance prices'.

'With TPM, users have a complete solution to all their service needs'.

We have local service centres and can therefore be with clients more quickly than the manufacturer, whose service centre may be far away'.

c. Factors Inhibiting Growth

Italian TPM vendors are generally optimistic about the growth opportunities in their market. In fact, two respondents considered that there were no factors hindering the growth of TPM at all.

The elements seen by vendors as inhibiting the growth of TPM, as can be seen from the comments shown in Exhibit III-9, are:
- Difficulties with obtaining spare parts.
- Increasing manufacturer protectionist policies.

All TPM firms are by their very nature dependent on manufacturers' policies for spare parts and technical information. With maintenance becoming a profitable business, manu-facturers are keen to protect their revenue base. This leads to increased competition and should not necessarily be seen as a major force which inhibits the growth of TPM.

EXHIBIT III-9

ITALIAN VENDOR COMMENTS ON FACTORS INHIBITING GROWTH OF TPM

'It is difficult to obtain spares from the manufacturers, particularly for new products'.

'IBM has been following a protectionist policy which has considerably hindered the activities of TPMs servicing IBM equipment'.

'TPM is a relatively new concept in Italy, and it is a good alternative to manufacturer service. Currently, there is nothing that can stop the growth of TPM'.

2. Competitive Environment

a. TPM Companies

i) Market characteristics

TPM companies identified by INPUT in Italy are:
- Ciesse Italia
- Computer Assistance
- Econocom
- Ibimaint
- INSIDE Maintenance
- Restore

Exhibit III-10 provides data on the principal characteristics of the five leading TPM companies in Italy.

TPM is still a new concept in the Italian market. This can be seen by the fact that of all the major TPM firms in this country, not one derives all its revenues by providing "pure" maintenance services only.

Vendors see the availability of local service as a factor which has promoted the acceptance of TPM among users. One of the reason why these companies are able to provide local maintenance services is that, in fact, maintenance is a spin off activity from the sale of equipment.

EXHIBIT III-10

LEADING INDEPENDENT TPM VENDORS IN ITALY RANKED BY TPM REVENUE (Italian Lira Billions)

	REVENUE 1986	NO. OF ENGINEERS	NO. OF SERVICE CENTERS
IBIMAINT	19.0	120	24
CIESSE	17.0	80	25
ECONOCOM	17.0	40	2
EUROTECH	4.7	45	11
RESTORE	2.5	20	2

ii. Mergers and Acquisitions

Given that for the most part, Italian TPM firms' activities are mainly centered on the sale of equipment, there has been little interest in the market for companies to be acquired or for mergers to take place.

The Italian TPM market, however, is one that is in its early stages of growth with considerable potential for expansion.

Olivetti, which has for some time now shown a keen interest in TPM across Europe, has taken advantage of the Italian market situation as well by acquiring a 65% stake in Italy's largest TPM company, Ibimaint.

b. Range of Equipment Maintained

All the Italian TPMs interviewed by INPUT specialize in the maintenance of IBM equipment. Of these, only one, Ciesse Italia, maintains mainframes, namely the IBM 4300 Series.

One of the characteristics of the Italian market is that apart from a handful of very large organizations, users are by and large the small to medium-sized companies.

It is therefore not surprising to see that all the top TPM firms have concentrated on maintaining equipment that is most widely used by these companies. The range of equipment maintained is:

- Minicomputers: IBM systems 34, 36, and 38.
- Personal computers: IBM and Olivetti.
- All major makes of peripherals and terminals.

c. Services Offered

i) Current Services

None of the Italian TPM firms interviewed offer services other than pure hardware maintenance. This is a further indication that the TPM market in Italy is still in its early stages of development, where user demand for additional services has yet to exert enough pressure for vendors to expand their services.

However, given that all the Italian TPM firms are primarily dealers, INPUT believes that it is very likely that a certain amount of consulting is carried out by these firms even if this activity is not seen by the vendors as being part of their TPM service.

By the same token, dealer organizations who have a technical support team are likely to undertake the installation of the equipment as part of their standard services.

In any event, vendors are possibly ignoring potential sources of revenue. They are disregarding to a considerable extent the positive marketing impact which these additional services can have on their firms' activities.

ii) Future Services

Future plans of respondent firms currently include the expansion of their service in terms of the range of hardware that they maintain. The larger TPM firms, in particular Ibimaint, are planning to enter the mainframe maintenance market. Of course, this will require considerable investment in spares and human resources, but it is a market that has so far remained the manufacturers' stronghold in Italy.

Italian TPMs are also beginning to realize that with increasing user acceptance of TPM, a diversification into providing maintenance on a wider range of manufacturers' equipment is a business development opportunity.

d. Competitive Factors

TPM vendors in Italy see their main source of competition coming from other TPMs, but clearly, as in the market overall, it is the manufacturers who really represent the biggest challenge

All vendor respondents currently consider the maintenance market for personal computers and peripheral equipment to offer the best opportunities for TPM in Italy. TPM forms can expect to increase their user base in these markets but must be prepared to face increasing competitive challenges from manufacturers.

Overall, there exists at the moment little competition in the Italian TPM market as there are only a limited number of vendors. INPUT expects relatively high growth in this market fuelled mainly by "lower than manufacturer" pricing and local service availability.

D
The Netherlands

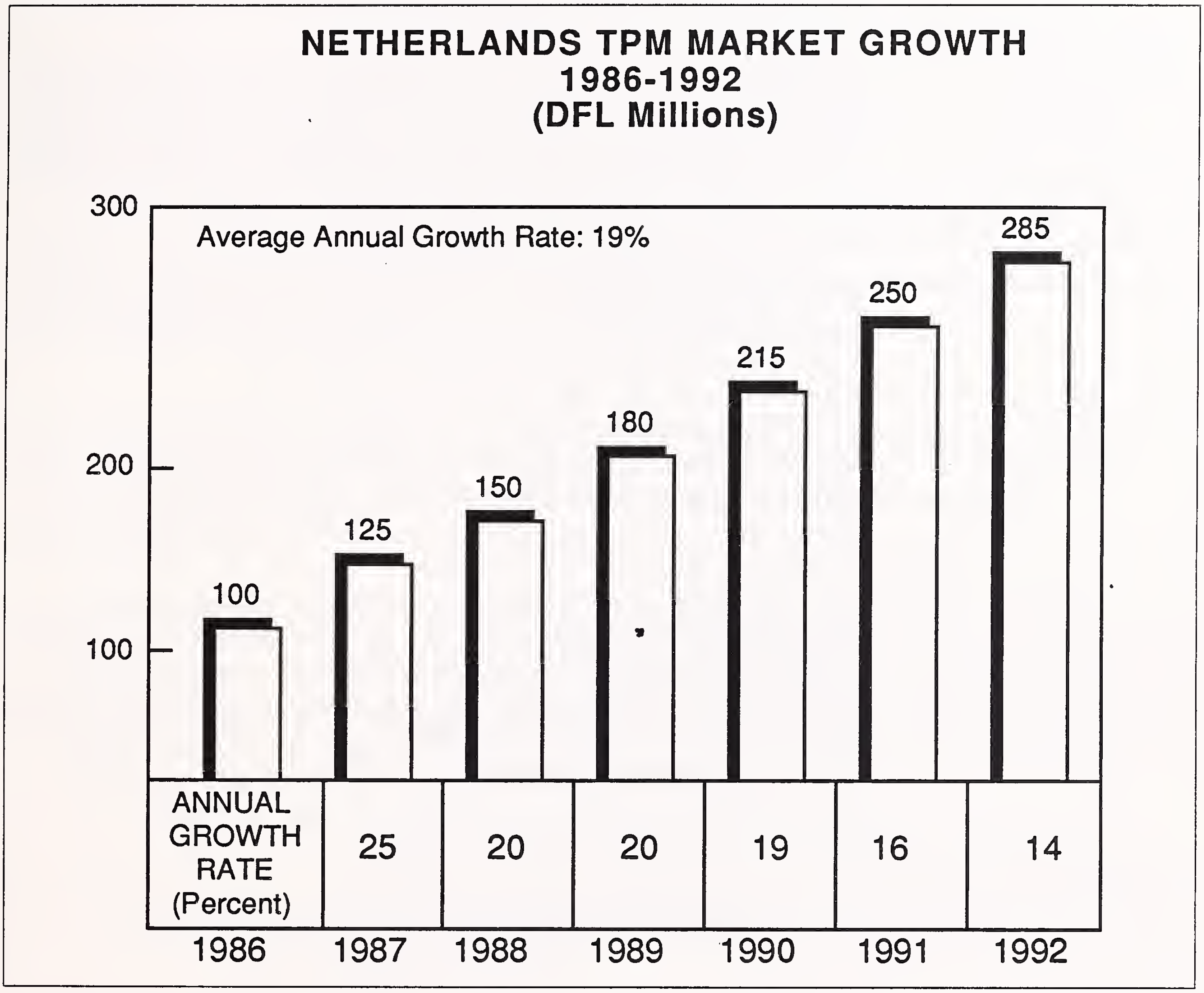
1. Market Development

a. Market Size

INPUT forecasts that TPM revenues in the Netherlands will grow at an average annual rate of 19% from Dfl 100 million in 1986 to Dfl 285 million in 1992, as shown in Exhibit III-11.

Growth in the Dutch TPM market has been high over the past three years and will continue at around 25% to the end of 1987. This high level of growth, however, will be difficult to sustain over the next six-year period with increased competition. INPUT expects the annual growth rate to fall to around 14% by 1992, to give an annual average growth rate over the forecast period of 19%.

EXHIBIT III-11



b. Growth Factors

The Dutch TPM firms interviewed by INPUT stressed the importance of the marketing of maintenance services. As one respondent pointed out: 'Service is an intangible product it can therefore not be seen, touched or felt ... but it is a product which is consumed'. The marketing of TPM thus presents a whole gamut of challenges concerned with service marketing. For a further description of this subject, see INPUT's report *Customer Service Marketing Methods in Europe,* August 1987.

Two of the largest TPM companies Geveke Electronics and DTC service, have set up a sales and marketing department within their organizations.

This activity has enhanced user awareness and acceptance of TPM in Holland, according to these companies.

A factor contributing to the growth of TPM in Holland, as in other European countries, is the increasing number of multi-vendor sites where the market for maintenance of all ranges of equipment, i.e., from mainframes and minis to PCs and peripherals, is becoming increasingly competitive.

It has been estimated, for example, that 61% of all DEC users in Holland have equipment from other vendors installed. This, therefore, creates an ideal opportunity for TPM firms specializing in the DEC market who can also offer maintenance on other makes of equipment.

TPM firms also believe that they have the advantage of being able to be as flexible as needed in order to accommodate client requirements. They are not, as manufacturers are, restricted by "package" services and can perhaps more readily treat each customer's needs on an individual basis.

One of the respondents strongly believes that the principal reason why TPM companies exist at all is that manufacturers have created incompatibilities within their own markets and this is what has given rise to customer need for TPM. Some other vendor comments on factors promoting growth are shown in Exhibit III-12. Having a reputation for offering quality and personalized service is also a factor that has promoted the growth of TPM now that its use has become more widespread.

EXHIBIT III-12

DUTCH VENDOR COMMENTS ON GROWTH FACTORS

'We are a household name and have a good reputation for offering a reliable service'.

'We offer a wide range of services and have proved that in order to maintain our reputation, quality is just as important to us as it is to the user'.

'We pride ourselves on discussing with the client what his requirements are, and deliver service to the level that is desired by the client'.

c. Factors Inhibiting Growth

All respondents believed that the source of any inhibiting factors to the growth of the TPM market are most likely to come from the manufacturers and not the user market. One of these factors mentioned was the increasing period for manufacturer warranties on equipment. For example, IBM is offering a three-year warranty on workstations and DEC is offering one year free on-site maintenance on all products. These are indications that manufacturers are becoming more aware of the threat from TPMs. Consequently, manufacturers are making efforts to retain the majority share of revenues from maintenance services.

One of the respondents noted that his share of the IBM PC maintenance market was rapidly decreasing with IBM's own interest in that market. IBM's approach has been to reduce maintenance prices to a level that makes it very difficult for any independent TPM to compete.

Another factor that has been the cause of some concern to the Dutch TPM firms is the shortage of skilled and trained engineers. Training new engineers is a very costly process and it takes a while, from six to twelve months, before the engineer is fully trained on all aspects of maintenance. Once engineers are trained, and given that they are few in numbers, TPM firms do not find it easy to keep their good engineers from being recruited by the competition.

The Dutch TPM market is still relatively immature, allowing room for competition. The high levels of investment required for entry into this market and the increasing competition from the manufacturers, however, will keep new entrants at bay unless the latter are backed by a financially strong organization.

The availability of spares, which was traditionally seen by TPM firms as a major inhibiting factor, was not seen by the respondents as causing problems. As one respondent bluntly commented: 'If I cannot get what I need here, I will buy it in the United States. The cost of doing this is justified by not having to wait months and not being at the mercy of the manufacturer'.

2. Competitive Environment

a. TPM Companies

i. Market Characteristics

INPUT estimates that there exist a small number of TPM companies active in the Dutch market and these include:

- Business Solutions International
- DPCE
- DTC
- Econocom
- Escon
- Geveke Electronics
- Mainstay
- Thijssen Field Service
- XTEC

Of these, only one, Geveke Electronics, has regional offices around the country. Other TPM firms who operate from one service center, normally located centrally in the country, are not more than two hours away from any given town within the Netherlands.

Exhibit III-13 shows data on the leading independent TPM companies in the Netherlands.

EXHIBIT III-13

LEADING INDEPENDENT TPM VENDORS IN THE NETHERLANDS RANKED BY TPM REVENUE (DFL Millions)

	REVENUE* 1986	NO. OF ENGINEERS	NO. OF SERVICE CENTERS
Geveke Elec.	41.0*	200	5
DTC Service	25.0*	33	1
DPCE Holland	11.0*	80	1
BSI	6.4*	65	1

*INPUT Estimates

A notable aspect of the Dutch market is the presence of a large number of multinational companies, which are potentially ideal target users of TPM firms. A recent move by the major multinational organizations, namely Shell, has been to encourage all employees to purchase personal computers for home use. For each PC, the employers are offering to pay for 50% of the price with a possibility of borrowing the remaining 50% at a very low rate of interest (3 to 4%).

An opportunity thus exists for TPMs to offer maintenance for the PCs purchased by the employees. Although one of the pitfalls of such a move is that these users would typically need support and services outside the normal working hours, a compromise may still be reached by offering a service tailored to the needs of this particular group of users.

Geveke Electronics, for example, has taken a step in the direction of offering service to the "home computer users" by agreeing to provide a carry-in service to Holland's 'Hobby Computer Club', an association of potential professional users with 30,000 members.

ii) Mergers & Acquisitions

The only significant acquisition that took place in the TPM market in Holland in 1986, was the acquisition of Business Solutions International (BSI) by the TPM Europe group for an undisclosed sum. As in other country markets, companies wishing to enlarge their existing base and widen the scope of their activities are taking an interest in acquiring smaller organizations.

b. Range of Equipment Maintained

Dutch TPM companies tend to specialize in the IBM and DEC markets. DPCE is the only company interviewed by INPUT which maintains CPUs from a number of manufacturers, namely Honeywell-Bull, IBM, NAS, and Unisys.

All respondents agreed that in order to increase the TPM share of the maintenance market, they would have to be able to offer services on CPUs as well as other equipment because users preferring single-source maintenance would turn to vendors offering maintenance on their CPUs.

Geveke Electronics, for example, specializes in the IBM market, currently offering maintenance services on the IBM S34 and 36 with plans to include the S38 by the end of 1987. Geveke also maintains MAI mini-

computers. Other TPMs maintain minicomputers from DEC, Qantel, and Stratus.

All Dutch TPMs maintain the major makes of peripherals and terminals, as well as data communications equipment. The most popular personal computer maintained is the IBM PC although there are others such as Philips, HP, and DEC which are supported.

c. Services Offered

i) Current Services

Dutch TPM firms are only just beginning to offer services other than pure hardware maintenance. These services include:

- Installation.
- Site planning.
- Installation planning.
- Consulting.
- System upgrades.
- System testing.

ii) Future Services

Respondents' future plans for expanding the scope of the services that they offer included:

- Increasing the range of hardware supported.
- Introducing specialized "hotline" services.
- Offering third-party management services that would encompass all of the users' needs.

These intentions clearly indicate that the Dutch TPM market has reached the maturity stage where vendors are beginning to have to give consideration to services other than pure hardware maintenance.

Other areas into which respondents plan to expand their activities are those of telecommunications and networks where few service vendors, both manufacturers and TPMs, have specialized skills.

d. Competitive Factors

Dutch respondents to this survey considered the main source of competition to be other TPM companies. None saw a threat from the manufacturers' side in relation to their TPM business. Of course manufacturers are a source of competition to TPMs for their own range of equipment,

but manufacturers have not yet entered the TPM market in Holland as is the case in other European countries.

Only the dealers interviewed believe that manufacturers are also a source of competition, in particular the IBM dealers. This is because IBM in Holland has taken steps to undertake the maintenance of its personal computers, which is the principal product sold by the dealers.

The Dutch TPM firms see the mainframe, mini, and telecommunications sectors as being the most competitive segments of the market. As noted above, all major TPMs are planning to expand their activities into these areas.

E Sweden

1. Market Development

a. Market Size

INPUT forecasts that the Swedish TPM market will grow at an average annual rate of 19% from SK 200 million in 1986 to SK 580 million in 1992, as shown in Exhibit III-14.

The Swedish market thus remains relatively small with a limited number of competitive players. INPUT estimates that there are probably only around 15 active TPM companies operating in Sweden.

Growth of the market is currently at a level of around 20% per annum, but this is forecast to fall away. INPUT anticipates market growth falling to a level around 12% per annum by the early 1990's.

b. Growth Factors

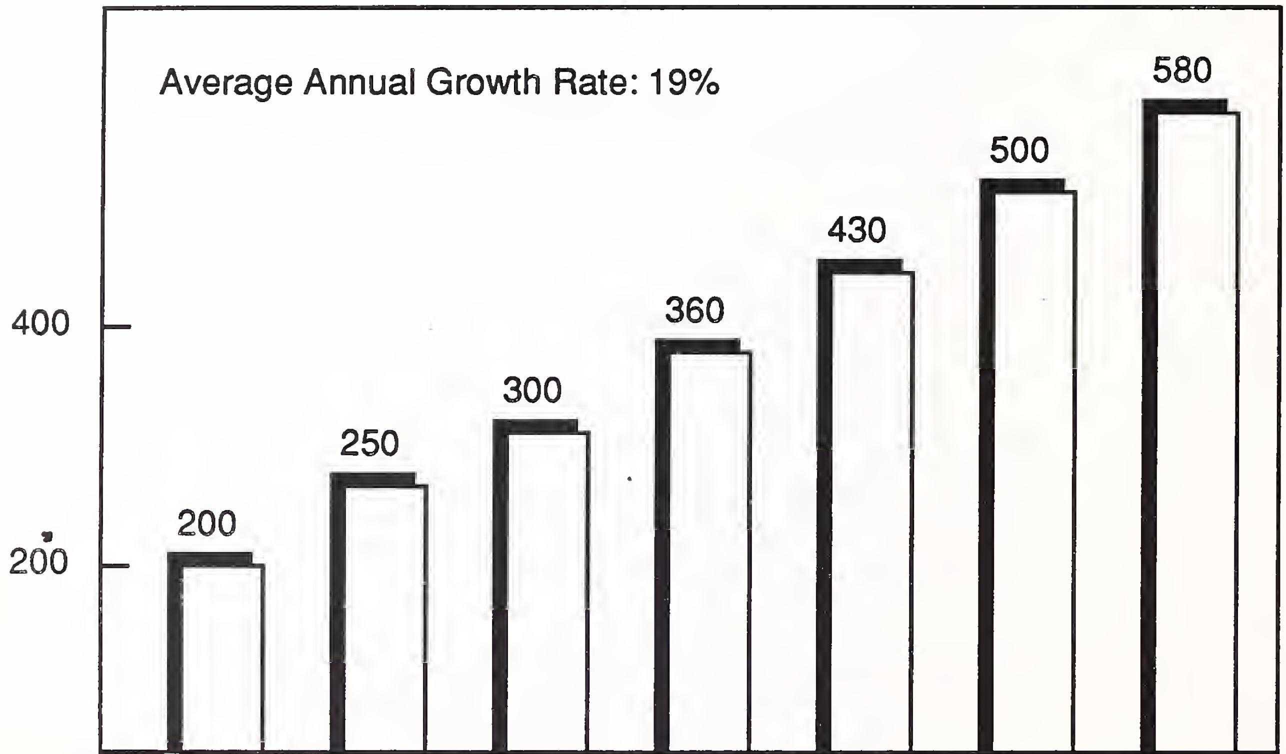
Swedish vendors believe that the principal element which has contributed to the growth of TPM in Sweden is user demand for single-source maintenance.

Typical TPM users in Sweden are from sectors of the industry which would tend to have mixed installation sites, namely manufacturing, insurance, and banking.

There are, however, other factors that are also seen by the Swedish vendors as playing an important part in the wider acceptance and thus growth of TPM in Sweden. These factors are related to the service that is

EXHIBIT III-14

SWEDISH TPM MARKET GROWTH
1986-1992
(SK Millions)



ANNUAL GROWTH RATE (Percent)	25	20	20	19	16	16
1986	1987	1988	1989	1990	1991	1992

offered by TPMs rather than market forces that have had influence on the growth of TPM and include:

- The ability to offer a service that is efficient.
- Price advantage.
- The ability to maintain several brands of hardware.

c. Factors Inhibiting Growth

The Swedish TPM market is one of the slowest growing TPM markets in Europe. Slow growth is usually associated with user resistance, and this was confirmed by the TPM vendors interviewed. In general, the Swedish

respondents did not have a strategic view of the factors that are currently inhibiting the growth of TPM in Sweden.

One factor which INPUT believes will at least begin to inhibit the future growth of TPM in Sweden is increasing manufacturer involvement in this field. So far, manufacturers have not targeted the Swedish, and particularly Scandinavian, TPM market with a view to extending their revenue base. This situation is likely to change within the next two to three years as manufacturers implement pan-European independent maintenance strategies.

Exhibit III-15 shows some examples of comments made by Swedish vendors about TPM growth and inhibiting factors.

EXHIBIT III-15

SWEDISH VENDOR COMMENTS ON FACTORS PROMOTING/HINDERING GROWTH

A. FACTORS PROMOTING GROWTH

'TPM is a market that has grown because it has the following advantages: quality service at an attractive price and single source maintenance'.

'Customers want to hand over the total responsibility for their systems to one company, i.e., a TPM'.

B. FACTORS HINDERING GROWTH

'Longer manufacturer warranties are a big problem'.

'Growth of TPM in Sweden is being hindered by manufacturers entering TPM or promoting their own services better'.

2. Competitive Environment

a. TPM Companies

i) Market Characteristics

Some TPM companies operating in Sweden are:
- Databolim AB
- Emma Data System
- Ericsson Radio Systems
- Owellab
- Telub AB

Exhibit III-16 shows the characteristics of the three largest TPM companies in Sweden, Telub, Ericsson Radio Systems, and Databolim.

EXHIBIT III-16

LEADING INDEPENDENT TPM VENDORS IN SWEDEN RANKED BY TPM REVENUE (Swedish Krona Millions)

	REVENUE 1986	NO. OF ENGINEERS	NO. OF SERVICE CENTERS
TELUB	110	165	17
ERICSSON RADIO SYSTEMS	60	100	29
DATABOLIM	40	125	14

It is interesting to note that unlike other European countries, the maintenance of personal computers is not a major element of the Swedish TPM market. For example, Telub does no PC maintenance at all. The geographical disposition of Sweden tends to imply that the majority of maintenance business is generated in Stockholm and its adjacent regions.

ii) Mergers & Acquisitions

INPUT's research revealed that the only acquisition that took place in the TPM market in Sweden in the course of 1986/87 was the acquisition of a computer sales and maintenance company "Aruanius" by Databolim. Databolim have not disclosed the amount paid for this acquisition which added 25 field engineers to the company's field engineering force.

b. Range of Equipment Maintained

The range of equipment maintained by the top three TPMs in Sweden is:

- Minicomputers: IBM systems 34 and 36, Modcomp, Prime, Point 4, Bitronics, DEC, and Data General.

- Personal Computers: IBM, Ericsson, ABC, Sanyo, and DDF.

- Peripherals: All major makes including Fujitsu, Data Products, and Printronix.

As mentioned above, the maintenance of PC's is a limited part of the Swedish TPM market and the majority of business is generated from the maintenance of peripheral equipment.

c. Services Offered

i) Current Services

The TPM vendors interviewed by INPUT in Sweden tend to specialize in pure hardware maintenance. Installation is the only additional service that all companies offer as standard practice. One vendor commented that they would possibly offer consulting services to clients on an ad-hoc basis.

This suggests that there is considerable scope for TPM vendors in Sweden to offer a wider range of services. INPUT believes that in Sweden TPMs need to market their services more aggressively, offering more uniquely defined packages to meet individual client needs.

The more comprehensive the range of services offered, the more likely vendors are to attract potential customers. At present, Swedish users tend to prefer the manufacturers' service to independent organizations. TPMs will, therefore, have to be able to prove that the quality of their service is at least as good as what manufacturers are offering.

ii) Future Services

When asked about their future plans, all respondents indicated that they are planning to expand their activities within the next one to two years.

One vendor said that his company was planning first to increase its user base and then to offer a wider choice of services as determined by user requirements. Another vendor's prime objective is to expand the maintenance activities of its firm to include higher product ranges such as mainframes and large minicomputers. As for services that are not purely hardware maintenance, this vendor is taking a step-by-step approach to increasing its offerings. A third vendor has a very clear policy of expanding its services to include maintenance of telecommunications equipment.

d. Competitive Factors

Noting that there are very few TPM players in the Swedish market, competition is limited in the main to the activities of the two larger TPMs: Telub and Ericsson Radio Systems. The Swedish vendors do not see manufacturers as posing a threat in the short term as their independent maintenance activities appear to be relatively limited.

What the vendors do see as a problem is the increasing reliability of hardware and the difficulties of promoting the need for maintenance in a market that has not overwhelmingly welcomed the presence of TPM. Vendors agree that the two most competitive product sectors for TPM are the mainframe and telecommunications markets.

INPUT believes that once TPMs have crossed the initial hurdle of user resistance there will be new entrants into the Swedish TPM market which will, as do the existing companies, spread out to cover the whole Scandinavian market. New entrants are more likely to start off their business in Sweden because:

- It is a market where TPM is the most developed of the Scandinavian countries.

- It is a country where taxation is amongst the highest in Europe; the tax system offers considerable advantages to start-up companies. This special factor may well encourage new participants in this market.

F The United Kingdom

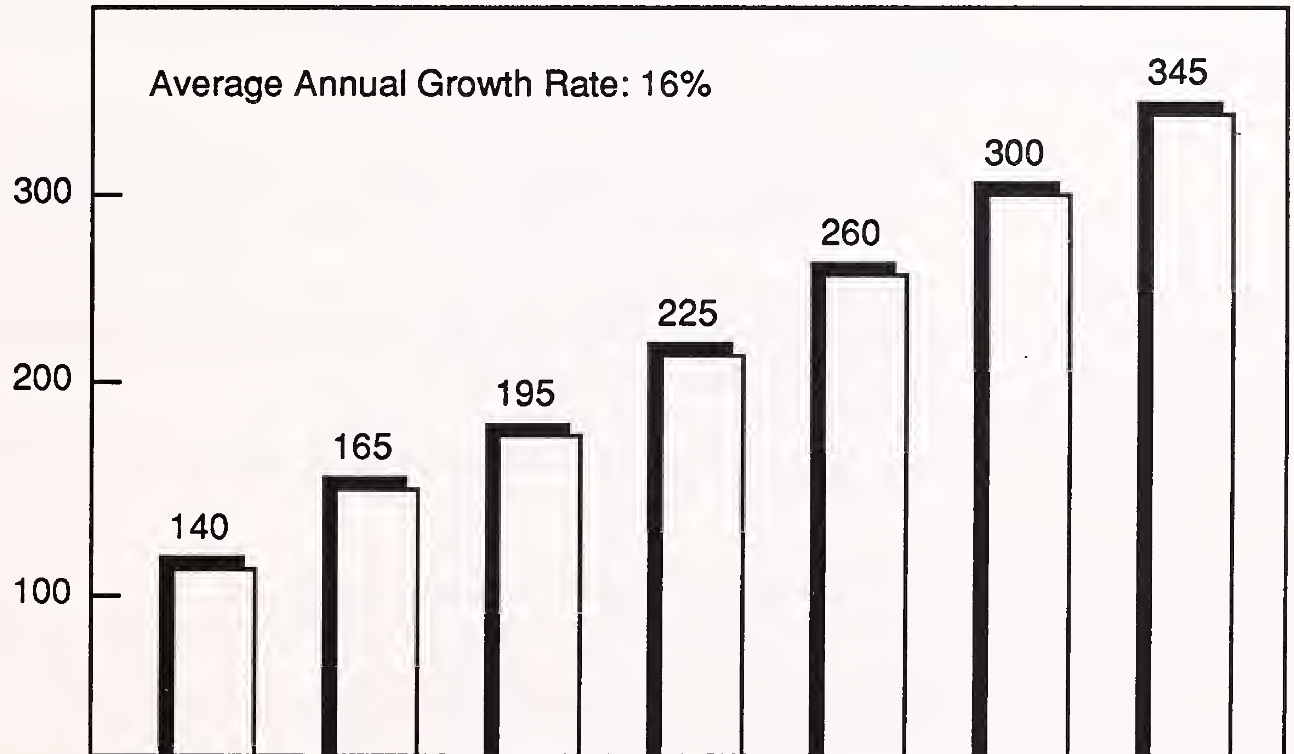
1. Market Development

a. Market Size

INPUT estimated that UK TPM revenues totalled £140 million in 1986 and will grow at an average annual rate of 16%, reaching £345 million in 1992, as shown in Exhibit III-17. The revenues in 1986 were achieved by approximately 150 companies. The top ten companies' average revenues are £8.3 million to take just under 60% of the total market.

EXHIBIT III-17

UK TPM MARKET GROWTH
1986-1992
(£ Millions)



ANNUAL GROWTH RATE (Percent)	1986	1987	1988	1989	1990	1991	1992
		18	18	15	15	15	15

TPM is more widely accepted by UK users than in other European countries, as indicated by the comparatively large number of TPM companies. Although this is one of the elements contributing to the relatively slow growth of TPM in the UK, two other factors must also be noted:

- There is more manufacturer involvement in independent maintenance in the UK than in other European countries.

- The reduction of manufacturer maintenance prices and increased warranties have encouraged more users to remain loyal to the equipment vendor for maintenance.

b. Growth Factors

As already discussed, the UK TPM market is the largest in Europe and most vendors are still optimistic that the growth that has been seen in the past few years will continue.

TPM vendors in the UK attribute the rapid growth experienced in this market to:

- The increasing number of mixed-vendor installations leading users to seek an economic alternative to manufacturer-supplied support which would provide competent service on a number of makes of equipment.

- The offering of a single source of maintenance which avoids the hassle of finger pointing among competing manufacturers. Users also benefit from reduced maintenance prices.

Vendors also perceive the following factors as having promoted the growth of TPM in the UK, which include:

- The ability to be as flexible as required by the user.
- The willingness to maintain equipment no longer supported by the vendor.
- The ability to deal with clients on a more personal level.

The UK government has created an additional market for TPM by demanding that all government departments put all service contracts out to tender.

Exhibit III-18 lists some vendor comments on TPM growth in the UK market.

EXHIBIT III-18

UK VENDOR COMMENTS ON GROWTH FACTORS

'We offer a one-stop solution to our clients'.

'Our clients know that they are always dealing with the same people and this is what they like about us'.

'Price used to be the main factor. Today our standard maintenance contract offers a lot more than manufacturers' standard contracts. For example, we offer disaster recovery free'.

'TPM offers flexibility and dedication to service for which clients receive improved equipment performance and a higher standard of service'.

c. Factors Inhibiting Growth

The continued growth that has characterized the UK TPM market had for some time been marked by few inhibiting factors. Over the past year, however, vendors have begun to feel the pressures arising from increased competition both from other TPMs and new entrants as well as from increasing manufacturer involvement in this sector of the market.

A view that is shared by all TPMs is that manufacturers are becoming more and more protectionist because TPM is reducing their own opportunities for generating revenues. One factor which TPM vendors see as having had the most damaging effect on the growth of their revenues is the 12-month to three-year warranties now being offered by manufacturers which also include on-site maintenance. Respondents also commented on user pressure for lower maintenance prices. This is directly related to improvements in the reliability and the fall in the price of hardware.

Although the issue of warranties and user attitude to the price of maintenance were the two main factors seen by respondents as hindering the

growth of TPM, some companies were concerned by the general attitude of users to TPM. For example, vendors commented:

- ‘Users still mistrust TPM and prefer to turn to the manufacturer of their equipment for support’.
- ‘Users want high quality maintenance at a low price’.
- ‘It is still difficult to convince users of the need for maintenance’.

One vendor noted that another significant problem that TPMs have had to deal with has been ‘incompetent competition’. At the small end of the market, i.e., PCs and peripherals, this has indeed been a true point of concern.

This issue has not had much effect on companies that offer maintenance on larger equipment. The high level of investments required for a company to be able to offer support at this level has tended to keep away companies who enter the market for a quick return and who perhaps only remain in business for a short while.

Exhibit III-19 provides some further examples of vendor comments on inhibiting factors.

EXHIBIT III-19

UK VENDOR COMMENTS ON FACTORS INHIBITING GROWTH

'With increased equipment reliability, it is difficult to convince users of the need for maintenance'.

'Users want high-quality service at a low price'.

'Incompetent competition has had negative effects on TPM'.

'Increased manufacturer warranties are a problem'.

'Manufacturers are reluctant to release necessary information For aiding TPMs to compete in field services'.

2. Competitive Environment

a. TPM Companies

i) Market Characteristics

The UK TPM market is the most mature in Europe and it is therefore not surprising to find considerably more players in this market than elsewhere in Europe. INPUT estimates that there are some 150 TPM companies in the UK, the majority of which are small and tend to specialize in one range of equipment (mostly PCs and peripherals). Exhibit III-20 lists the leading independent TPM companies operating in the UK market.

Increasingly, however, growth in the market is determined by the larger companies who have the resources for offering a wide range of services on equipment ranging from large CPUs to low-end peripherals. As discussed earlier, for a TPM to be able to offer support on CPUs, a company would need to invest heavily in order to have the necessary stock of spares and, more importantly, the technical expertise. This is why there are only a handful of TPMs in the UK who are in a position to offer support on all ranges of equipment, from mainframes to peripherals.

The majority of UK TPMs have developed their business on maintenance of business PCs and peripherals. These companies, however, are under increasing pressure from increased equipment reliability, decreasing price of hardware, and manufacturers' entry into the TPM market. Since the TPM user base in the UK is already high in relation to other European countries, this category of TPMs should seek to offer a wider range of support related services in order to expand their revenues.

Given that one of the principal elements of TPM usage is concerned with single-source maintenance, INPUT expects that the smaller companies will move into minicomputer maintenance which would give entry into an adjacent market like network support.

EXHIBIT III-20

LEADING INDEPENDENT TPM VENDORS IN THE UK RANKED BY TPM REVENUE (Pounds Million)

	£M REVENUE 1986	NO. OF ENGINEERS	NO. OF SERVICE CENTERS
CFM†	15.0	365	22
DPCE	12.0	290	32
EXTEL	10.5	250	25
BELL TECHNICAL SERVICES	10.0	260	7
MBS	7.0*	110	11
DATA LOGIC	6.8	120	19
DDT	6.5	160	13
KODE COMPUTERS	4.9	110	8
COMPUTERAID	4.5	130	11
SMS†	4.5	55	7
SYSTEMS RELIABILITY	4.2	110	10
MAINSTAY	3.6	110	10
SUN COMPUTER MAINTENANCE	3.5	51	1
QUEST	3.2	102	6
COMPUTER MARKETING	2.3		
ATM	2.0	60	10

NOTE: * INPUT Estimate
†CFM and SMS were merged in January 1987

ii) Mergers & Acquisitions

As shown in Exhibit III-21, a number of UK TPM companies were acquired by other TPMs wishing to expand their user base and the range of equipment maintained. This exhibit also shows the manufacturers' interest in independent maintenance. Note in particular Olivetti's two acquisitions in 1987.

EXHIBIT III-21

ACQUISITIONS OF TPM FIRMS IN THE UK (1986/87)

AQUIRER	AQUIRED
GRANADA GROUP	SMS
DPCE	50% CIL ENGINEERING
UCL	NEXEL
EXTEL	MILLS ASSOCIATE
DATASOLVE	ZYGAL
DATASERV	COMPEL
TPM EUROPE	OPTIM/DIGICO
DDT	ESCO COMPUTING
MBS	UBS
OLIVETTI	BUTEL
OLIVETTI	FIRST COMPUTER
HONEYWELL	ZILOG FIELD SERVICE

b. Range of Equipment Maintained

As in other European countries, the majority of TPM companies in the UK specialize in the maintenance of personal computers, terminals, and peripherals.

Although many of these companies plan to expand their activities into the maintenance of mini computers, there are at present approximately 20 companies who undertake the maintenance of this range of equipment. All of these are larger TPMs which rank in the top 30. Although some of these, namely DPCE, specialize in the maintenance of minicomputers manufactured by all major vendors, the majority have specialized in either IBM or DEC minicomputer maintenance.

Mainframe maintenance is less widespread even amongst the larger TPMs, given the heavy investments required in parts and engineering skill. INPUT has only identified five TPMs who offer maintenance on mainframes: DPCE, Extel, CFM, Mainstay Computer Cover, and CIL.

INPUT expects more companies to move into the minicomputer maintenance market in the next 12 months. The increasing use of networks and the attraction of the telecommunications market where there are many mixed vendor sites will be the natural target for TPMs seeking to expand their activities.

c. Services Offered

i) Current Services

All but three companies interviewed by INPUT said that they offer support services which are not pure hardware maintenance. These services included:

- Installation.
- De-installation.
- Planning.
- Consulting.
- Training (hardware and software).
- Cabling.
- Site preparation.
- Network installation and maintenance.
- Software support (applications software).
- Upgrades.

Installation, de-installation, planning, and consulting services are now so widespread that they have almost become part of all TPMs' standard offerings. The companies that are not currently offering these services pointed out that they do have the expertise to carry out some extra services, in particular installation, and are doing these on an ad hoc basis.

The TPMs who are not offering any additional services to hardware maintenance are mainly those that specialize in PC and peripheral maintenance or are the maintenance arm of a dealer organization which separates the two activities.

ii) Future Services

Vendors' future plans for extending their current hardware maintenance services are:

- To expand the range of equipment maintained, i.e., move into mini and mainframe maintenance.

- To maintain equipment from a wider range of manufacturers, particularly for minicomputers.

The larger TPMs are planning to concentrate more of their activities around the maintenance of data communications equipment as the number of users in this sector increases. It is interesting to note that apart from one TPM respondent who commented on his company's plans to enter the systems software support market, no other vendors have any strategic plans to expand their current range of non-hardware related services.

Vendor attitude towards future services can best be summarized in the words of one respondent: 'TPMs must and will expand the range of services they offer as and when the need for this arises. Those who don't follow this principle have no chance for survival'.

d. Competitive Factors

Respondents had mixed opinions about who they see as being their competitors in the TPM market. The majority took the attitude that anyone who is involved in similar activities as their own is naturally a competitor.

But on the whole, respondents ranked the main source of competition as being:

- Other TPMs.
- Manufacturers offering independent maintenance services.
- Manufacturers.
- Self-maintenance.

Although, as mentioned earlier, TPMs see themselves moving more and more into the maintenance of data communications equipment, the PC sector remains the most competitive in terms of growth and revenues.

UK TPMs do not appear to feel threatened by the increasing involvement of manufacturers in independent maintenance and are skeptical of the manufacturers' chances of success in a market that they see as their own. This viewpoint seemed to be held fairly consistently by TPM vendors across Europe. INPUT would caution that this view considerably underestimates the impact that the manufacturers will have on this market.

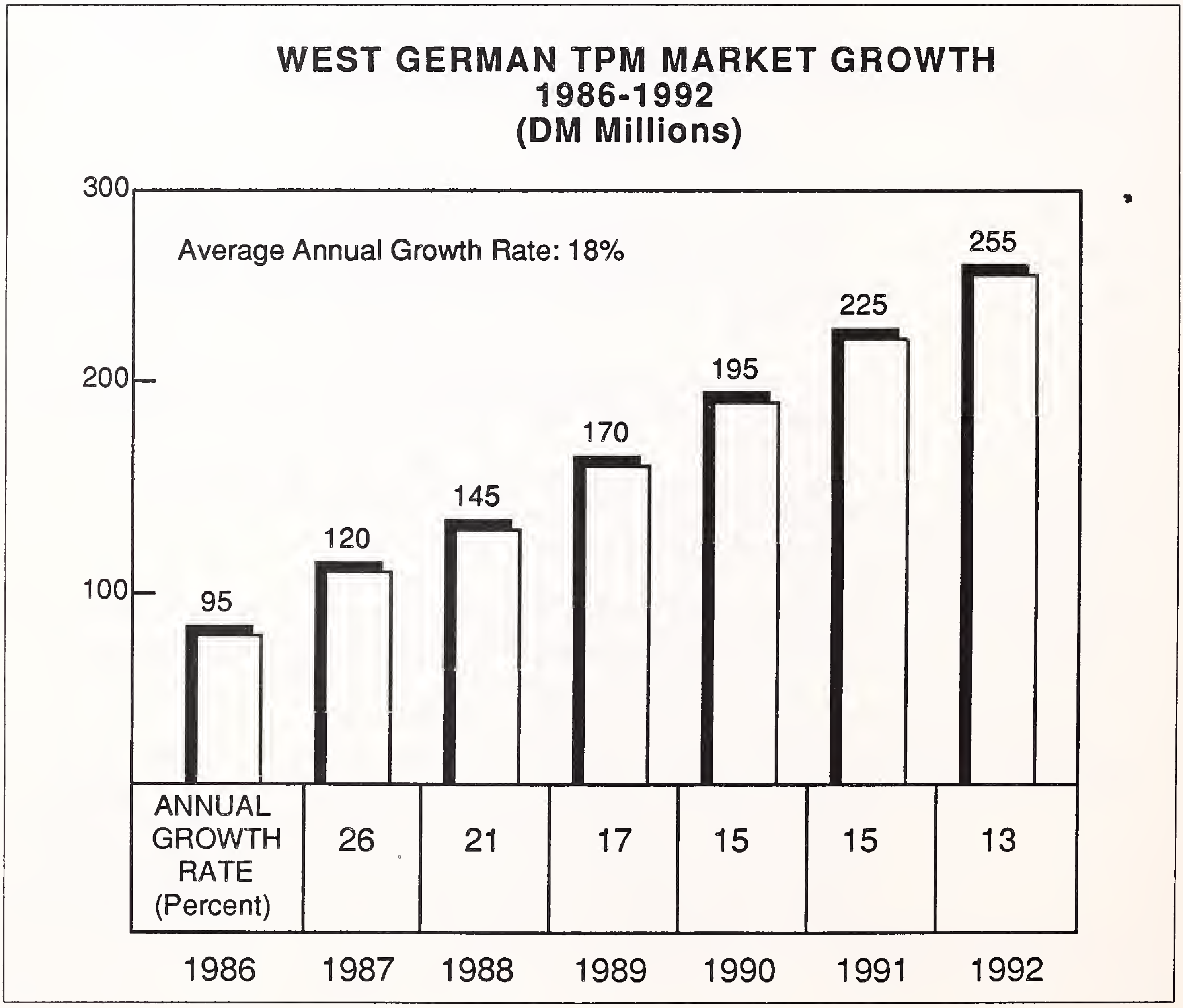
G
West Germany

1. Market Development

a. Market Size

TPM revenues generated in Germany in 1986 are estimated to have totalled DM 95 million and are forecast to grow at an average annual rate of 18% over the next six years to reach DM 255 million in 1992, as shown in Exhibit III-22. INPUT forecasts that the German TPM market growth rate, currently assessed at around 21%, will not be sustained with increasing competition in the market. The annual growth rate is expected to fall to around 14% in early 1990's.

EXHIBIT III-22



b. Growth Factors

The factors identified by the German respondents as promoting the growth of TPM relate to the attitude of the users and factors within the direct control of the TPM companies. Vend-ors noted that users are increasingly receptive to TPM particularly because TPM offers single-source maintenance to mixed installation sites. In response to user demand, TPMs are able to offer more flexible maintenance contracts. The advantage of this is that each TPM is willing to negotiate contracts on an individual basis and not merely offer a number of packaged services.

Although pricing can be used as an incentive, only one vendor respondent thought that TPM popularity had increased on the basis of price.

Exhibit III-23 provides some examples of vendor comments on factors promoting growth in the German TPM market.

c. Factors Hindering Growth

German TPM vendors, although optimistic about the growth potential of the TPM market in Germany, are also aware of certain factors which are threats to that growth. Exhibit III-23 details comments on factors hindering growth in the market.

These factors fall into two categories:
- User resistance.
- Manufacturers' maintenance policies.

Vendors believe that German users are very conservative and are not willing to experiment with TPM, but this attitude is slowly changing as more TPMs increase their marketing activity. Nevertheless, user resistance to TPM is stronger in Germany than in other European countries.

The second category of potential inhibitors concern the maintenance policies of the manufacturers. German TPM vendors have difficulties in obtaining spare parts from the manufacturers and are also concerned by the introduction of longer warranties that discourage users to choose TPM.

Respondents also felt that over the past two years, the lowering of hardware prices has also led users to expect lower maintenance prices. Although INPUT notes that in Germany pricing is an important tool used by

EXHIBIT III-23

GERMAN VENDOR COMMENTS ON FACTORS PROMOTING/HINDERING GROWTH

A. FACTORS PROMOTING GROWTH

'Customers are beginning to open up to TPM at last'.

'Customers have closer working relationships with TPMs than hardware manufacturers'.

'TPM is more flexible and more responsive to customer needs'.

'The ability to maintain several brands of hardware and offer single-source maintenance have greatly attracted users to TPM'.

B. FACTORS HINDERING GROWTH

'German users are 'manufacturer loyal' and do not turn to TPM so easily'.

'Longer manufacturer warranties are beginning to be a problem'.

'Whilst the price of hardware is falling, users expect a reduction in the price of maintenance too. At the same time, our costs of labour are increasing so it is hard to reach a balance that will make everyone happy'.

'Hardware vendors who do not readily provide TPMs with spares are a problem'.

TPMs to attract users, margins are shrinking as labour costs are increasing. Vendors should thus consider expanding their services into areas that are either less sensitive to price or are less labour intensive.

2. Competitive Environment

a. TPM Companies

i) Market Characteristics

INPUT estimates that there are approximately 45 independent TPM companies in West Germany. These include:

- Bitronic Hardware Service
- Dataway
- DDV
- DPCE
- Econocom
- Interscan
- ISS
- Periphere Computer Systeme
- SMS International
- XTEC Computer Systems

Exhibit III-24 provides data of the five leading independent TPM companies in West Germany.

Although TPM respondents believed that in Germany users are not as receptive to TPM as in other European countries, the size and number of existing firms indicate that TPM is nonetheless becoming increasingly popular.

All the major TPM firms in Germany have more than one service center (at least four in most cases), each situated in a major town, enabling them to offer users fast response times and a local service. It is interesting to note that the top TPMs in Germany are companies operating on a European rather than just a German level.

EXHIBIT III-24

LEADING INDEPENDENT TPM VENDORS IN GERMANY RANKED BY TPM REVENUE (Deutsche Mark Millions)

	REVENUE 1986	NO. OF ENGINEERS	NO. OF SERVICE CENTERS
ISS	20.0	20	7
DATAWAY	24.0 *	80	7
WIGO EDV-WARTUNG	6.0	70	18
SMS INT'L	5.0	20	8
BITRONIC HARDWARE SERVICE	4.3	34	5

NOTE: * = INPUT estimate

ii. Mergers & Acquisitions

In the period from June 86 to June 87, two companies operating on the German TPM market were acquired. These were:

- SMS International, acquired by Granada.
- Dataway, acquired by the Bell Canada Group.

Mergers and acquisitions in the German TPM market have not until recently been a means for expanding the activities of TPM. This situation is now changing with the two above-mentioned acquisitions as well as the fact that some of the respondents interviewed by INPUT indicated a keen interest to acquire maintenance organizations.

One company which is currently only active in Germany plans to expand its activities through either merger or acquisition or the opening of new subsidiaries in Austria and Switzerland.

b. Range of Equipment Maintained

German TPMs maintain a wide range of equipment from mainframes and minicomputers to PCs and peripherals.

The breakdown of the brands of equipment by product group is as follows:
Mainframe: IBM.
Minicomputers: DEC, Cromemco, Convergent Technologies, Datagraph, and IBM.
Personal Computers: IBM, Compaq, DEC, Tandon, Sharp, Panasonic, Minolta and other major makes.
Peripherals: IBM, DEC, CDC, NEC, Fujitsu, and other major brands.

c. Services Offered

i) Current Services

Most respondent companies offer services other than pure hardware maintenance. These include:
- Installation.
- Disaster Recovery.
- System Upgrades.
- Consulting.

Another activity in which some of the respondents are involved is sale of hardware and application software. Although some believe that these activities undermine the independent stance of a TPM, they nonetheless do represent the opportunity for attracting a larger customer base.

ii) Future Services

TPM vendors recognize the need to expand the range of services that they offer. A common belief of TPMs is that one of the advantages they have over manufacturers is their ability to offer single-source maintenance. The ability to maintain mixed installation sites also depends on the TPM vendor's ability to maintain CPUs. The TPMs objective should therefore be that of offering maintenance services on CPUs wherever practical.

INPUT believes that with the increasing importance and user dependence on data communications, this sector of the market will be a good and natural market for TPM.

Expansion of TPM activities in this sector, however, will to some degree be dependent upon the liberalization of telecommunications in Germany.

All vendors agreed that in order to attract a larger customer base, they would not only have to offer maintenance on a broader range of equipment but also from across a larger number of manufacturers.

d. Competitive Factors

German TPM vendors interviewed consider the hardware manufacturers who are entering the TPM arena as their principal source of competition.

Respondents considered the personal computer sector of the market to be the most competitive area. This is mainly because this sector requires a relatively low level of skills and with the increasing popularity of clones it represents a good opportunity and market niche for TPMs.

The minicomputer and the mainframe markets were also mentioned as being difficult areas for TPMs to get into. The potential difficulties with technical information and availability of spares have been matters of concern for TPMs considering entering this branch of the market. Manufacturers have the advantage over TPMs of a large in-place field engineering force.

IV

Strategic Industry Directions

IV

Strategic Industry Directions

A
Market Evolution

TPM appeared as a "fringe" market as entrepreneurs spotted opportunities to offer a lower price threshold than manufacturers for certain types of equipment. These businesses were fundamentally founded upon the excellence of their field engineers. The selected niches would be determined by the availability of that expertise and the logistics considerations, primarily the availability of spare parts.

As these companies have developed, grown larger, and become more stable businesses, they have been able to offer more sophisticated benefits over and above, cost saving. Their independence has enabled then to be more flexible in meeting customers specific maintenance needs.

In the 1980s the rapid development of the PC market has provided opportunities for many more small organizations to enter the TPM arena. Unfortunately this rapid growth has led to the presence of a number of organizations that have not been able to offer a professional level of service and this to some extent has impacted the image of TPM business.

Today, there are many European TPMs who still see the PC market as a good opportunity for expansion. This is particularly true in countries where the concept of TPM remains a novelty to users who prefer the traditional manufacturer support. In Italy, for example, it has been noted that all the TPM vendors are themselves PC dealers and no truly "independent" TPMs were identified in that market.

In the more advanced European TPM markets a move away from the maintenance of personal computers alone into more specialized support of a wider range of equipment is a trend that has been noted. In the UK

and France there have been fewer small new entrants than in the past. The smaller TPMs have been the target of acquisitions from larger companies wishing to expand their user base, geographical coverage, and revenues.

INPUT believes that the TPM market is one in which smaller companies will find it increasingly difficult to survive. Successful TPMs, on the other hand, are likely to have the following characteristics:

- Strong marketing and sales capabilities. Above all it will be necessary to be able to interpret the market's movements and be capable of responding with well-targeted and well-presented service packages.

- The ability to develop, implement, and refine cost containment measures that maximize profit and retain margins. Ultimately, only those vendors who can make money in the TPM market will survive.

- The capability to define, refine, and promote an image that is consistent with the role that the vendor has selected for the company. A good image of stability, competence, and high-quality service company is extremely important.

- The resolve to study the manufacturers carefully. Given the opportunity, they will recover their service base by any legal means at their disposal. Conflict with manufacturers is to be avoided wherever possible.

B

Third-Party "Hard" and "Soft" Services Markets

Apart from a very small number of large TPMs in Europe, eg., DPCE, the majority of TPMs in Europe are active in the "hard" services market. "Hard" services markets are those services that are purely concerned with the maintenance and support of hardware. These services predominantly consist of diagnosis and maintenance of installed systems, peripherals, terminals, personal computers, and data communications equipment.

At present, two of the fastest growing sectors of the European TPM "hard" services markets are datacommunications, particularly in France and the UK, and the "systems," i.e., mini and mainframe, market.

INPUT expects that PC, peripheral, and terminal maintenance will represent the bulk of TPM revenues in Europe over the next five year period. These are, however, low-margin markets and cost control will undoubtedly have to be one of the principal planning goals for TPMs.

Third-party software maintenance is a misleading term used in the industry to describe what are actually software support services. Maintenance of software involves not only the identification of errors in the various products released to the user community but also the correction of faulty codes. While many TPMs have the ability to support software, very few, if any, have the ability to maintain software, which is generally the prerogative of the software developer.

These two very different activities are usually organizationally separate in equipment manufacturers and are supported by different budgets. TPMs do not need to aspire to the maintenance of software, only the in-field support of the products that are an integral part of the hardware they contract to maintain. The support of applications, as opposed to systems software, represents yet another dimension of complexity to TPMs.

The numbers describing the market opportunity are also misleading. While it is true that the average user will spend on software support (in the case of applications software and particularly customized applications) as much as three to five times more than on hardware services, the part of those expenditures that is available to third-party vendors is of necessity rather limited unless they have a software house capability. Nevertheless the attraction of software continues, not least because the maintenance of software can command far higher premiums than can the hardware it runs on. Recognizing the revenue potential of software support and capitalizing on it are two different matters.

Considerations such as the above severely limit the practical value of software "maintenance" markets for TPMs. For all intents and purposes software support, in the form of error logging and first level "maintenance" of systems software, is all that can be usefully achieved with the possible exception of an applications software company acquisition.

The opportunities that exist within the "soft" services markets include:

- Leasing services, not included as a target market for TPMs, but considered because many leasing companies see maintenance services as a natural extension of their financial services.
- Software support services (and the file conversion and data recovery activities that are sometimes associated with them).
- Consulting/planning, education/documentation, and system installation and de-installation services which are increasingly being offered by European TPMs.

C
Competition

As discussed in Chapter III, TPM vendors see their two main sources of competition to be other TPMs, in the first instance, and manufacturers. It should, however, be noted that the majority of respondents remained confident about the future growth of their companies and none took either source of competition as a barrier to their future growth.

TPM vendors were asked to give their views on the increasing involvement of manufacturers in TPM. In general, TPM vendor attitudes towards the entry of manufacturers in this market is quite positive in the sense that TPM vendors do not believe that manufacturers will be able to make a very large impact on the TPM market and that the threat posed by their presence is only short term.

Some vendors believe that by entering the TPM marketplace, manufacturers are adding to the credibility of TPMs. This element of the competitive situation is welcomed by TPMs. TPM vendors believe that their principal advantage over manufacturers is their "independent" stance. These believe that even if manufacturers succeed in maintaining multi vendor installations, users will soon realize that manufacturers have a vested interest in offering TPM for a few years until they can sell the users their own equipment.

Over the past year, manufacturers such as Olivetti and Honeywell-Bull have been entering the TPM market more aggressively in Europe. Since January 1987, IBM and DEC have taken steps towards retaining potential maintenance revenue losses to TPM organizations with the introduction of attractive support packages, as is the case with IBM, or restricting the activities of OEMs and dealers, a policy introduced by DEC.

These are clear indications that manufacturers are beginning to take more notice of TPM competition. A major manufacturer commented that in 1986, the company had lost 15% of their service revenues to TPM. Considering the pressure on manufacturers' hardware maintenance revenues in the past two to three years, it is not surprising to see that these have now taken steps not only to regain revenues but also to prevent further revenue losses in the future.

Where the users' prime motivation for using TPM has been single-source maintenance on a wide range of equipment, TPMs have been able to counter act manufacturers'protectionism.

A strategy adopted by a French TPM company, Metroservice, is to provide manufacturers with regular reports on equipment failures with details on causes of individual problems. This vendor believes that by doing so it has established a close working relationship with the manufacturer and that the two are working with one another as opposed to competing with each other.

Product performance reporting is a two-edged (and very desirable) capability for TPM. Basically, the idea is to regularly monitor for the vendor the actual performance of the maintained product in the field (MTBF, MTTR, etc.). This activity accomplishes the following:

- It highlights any need for product upgrades and redesign.
- It highlights the performance of the TPM.
- It underscores the need for better parts availability (where necessary) or improved documentation, training, etc.

INPUT believes that this capability is a very marketable option for all TPMs, costing relatively little to resource unless, of course, the equipment being monitored shows a poor performance record.

Some companies have succeeded in reaching formal agreements with manufacturers, allowing them to have access to technical documentation and the spares that they need. Another example is that some of the larger TPMs have reached special agreements with manufacturers to act as their support arm when they do not have a technical support division in certain European countries. An example of this is DTC Service in Holland which maintains Qantel and Stratus minicomputers on behalf of these two manufacturers.

With the continuing fall in hardware equipment prices, TPMs are confronted with reduced margins on maintenance. In order to overcome this problem and to increase their chances of survival in the long-term, INPUT recommends that TPMs seriously consider the selection of specific niche markets, and the diversification of their activities away from pure hardware maintenance and enter areas such as: software support consulting on installation, planning, upgrades, etc.

With the increasing usage of networks, it will be these additional services along with the ability to maintain multi-vendor installations that will give TPMs the competitive edge needed to expand their business.

D
Pricing

Pricing was initially the main marketing tool to attract customers to the new concept of third-party maintenance when vendors were small with no track record. As users increasingly place more dependence on their data processing equipment, it is vital that they should receive maintenance support that solves their problem in the shortest time span and that the work done is of high quality in order to avoid further system interruptions.

The dilemma that exists is that users expect maintenance to be priced based on the traditional parameter of a percentage of the cost of the equipment and not the cost of actually providing the service. Typical percentages are:

- 5-7% for large CPUs and minicomputers.
- 10-12% for personal computers and peripherals.
- 12-15% for printers.

When interviewed, one TPM vendor said that their prices were from 10% to 15% more expensive than the manufacturer maintenance prices. All other respondents had prices that either matched manufacturer prices or were from 15% to as high as 50% cheaper.

In the UK, where vendors compared their prices as being lower in percentage terms, the range was from 15% to 30%. In France, only one vendor said that his prices were 30% cheaper, whilst the others merely pointed out that their pricing was "very competitive." In Germany, one vendor said that his pricing is comparable to the manufacturer. Three other vendors offer prices that are from 15 to 30% lower.

In Holland, one vendor admitted that for a certain range of low-end equipment, there is no way that they can compete with the manufacturers. One vendor has the same pricing as the manufacturer, and a third vendor said that on some products, his prices were in fact more expensive than the manufacturers.

Swedish respondents said that their prices are lower because price still plays an important role in being the deciding factor for users, to switch to TPM. In Italy, TPM prices are the lowest compared with the manufacturers' prices and are from 25% to 50% lower.

The above figures indicate that TPMs consider pricing as an important element for attracting new business. This is particularly true in the case of the younger markets such as Italy, and in countries where users are still uncertain of the viability of TPM, as is the case in Germany.

INPUT believes that in the long run as each country market develops, we will see less disparity on pricing of TPMs compared with the manufacturers and that quality of the service provided along with the ability to support a wide range of equipment will become the norm in user criteria for choosing TPM.

E
Fourth-Party Maintenance

Fourth-Party Maintenance (FPM) is described as a highly specialized activity whereby a TPM, under an exclusive or preferred source contract, provides clean room testing or recalibration of components and/or subsystems such as printed circuit boards, Winchester disks, etc. These services are provided on behalf of TPM vendors or original manufacturers.

While these have been the mainstay of fourth-party maintenance services, there are other opportunities which have been largely ignored to date by large TPMs:

- Logistics networks and parts handling capabilities are very expensive to set up on a national basis. Many of these networks are underutilized and none generate revenue *per se*. The services of these networks can be sold to companies who are not competitors in the computer equipment market.

- Such markets include automotive parts distribution and handling, electromechanical equipment support (of all types), and maintenance of critical equipment of all kinds (e.g., construction equipment, airport ground handling equipment, etc.).

- It may also be possible to offer logistics and parts handling capabilities to other TPMs who are not in the same markets as the larger TPMs.

The principal objective of FPM is to relieve the overhead burden for such necessary services by making them profit generating. Any TPM who can reduce his overhead in this or any other way will have a decided advantage in the market.

The FPM market is unique in that it is a market where the competition for any given service is likely to be only a handful of players. The European FPM market is in its very early stages of development but the potential for growth within this market is relatively high.

TPMs who have substantial internal demand for FPM service might find it advantageous to consider purchasing an existing fourth-party vendor,

merging the integral business with the company, and funding a growth-oriented marketing plan. This will not only increase the revenues of the TPM, but it would also help ensure that the work carried out by the FPM division met with the required high standards for service of the TPM.

V

User Perspectives

V

User Perspectives

A
TPM User Base Penetration

In 1987, INPUT interviewed 1294 users throughout Europe. Of these, 6% were users of TPM for their main system, i.e., mini or mainframe computer, and 13% used a TPM for their personal computer. A breakdown of the TPM system user sample by manufacturer is shown in Exhibit V-1.

Exhibit V-2 shows the level of TPM usage by country for mini/mainframe users of TPM. Exhibit V-3 gives a breakdown for each country for users who contract TPM for their personal computer.

Large and medium-sized systems comprise the smallest market share of the total TPM market as users of these systems have a greater loyalty to their hardware vendor and also because there are only a handful of TPMs who have the resources to offer support for this range of equipment.

Personal computers represent a large share of the market since they have become a significant part of mixed vendor environments receptive to third-party support. Many PC vendors concentrate their resources in operations rather than support, preferring to leave these activities to maintenance companies who can cover their widely dispersed installed base. A notable example of this in Europe is Amstrad, whose sole concentration has been on sales rather than support of its PCs.

EXHIBIT V-1

SAMPLE BY MANUFACTURERS MENTIONED MINI/MAINFRAME TPM USERS - EUROPE

	UK	France	West Germany	Italy	Sweden	Holland	Belgium	Norway	TOTAL
IBM	5	8	2	3	2	2	4	1	27
DEC	6	1	1	-	-	3	1	1	13
Comparex	-	-	-	-	-	-	1	-	1
Olivetti	-	-	-	-	-	-	-	-	-
Bull	1	1	-	1	-	-	1	-	4
Unisys	-	-	-	-	-	-	1	-	-
ICL	1	-	-	-	-	-	-	-	1
HP	1	-	-	-	-	-	1	-	4
NCR	4	-	-	-	-	-	1	-	4
Wang	1	9	-	-	-	-	-	-	10
Nixdorf	-	-	-	-	-	-	-	-	-
TOTAL	21	20	5	7	2	5	9	2	71

EXHIBIT V-2

MAINFRAME/MINI TPM USAGE IN EUROPE

COUNTRY	TOTAL RESPONDENTS	TPM USERS	PERCENT
UK	380	21	6
France	226	21	9
Belgium	95	9	9
Italy	129	7	5
Germany	223	5	2
Holland	98	5	5
Sweden	74	2	3
Norway	46	3	7
TOTAL	1,271	73	6

EXHIBIT V-3

PERSONAL COMPUTER TPM USAGE IN EUROPI

COUNTRY	TOTAL RESPONDENTS	TPM USERS	PERCENT
UK	343	68	20
France	180	13	7
Belgium	79	5	6
Italy	145	22	15
Germany	180	14	8
Holland	90	5	5
Sweden	65	9	14
Norway	44	8	18
TOTAL	1,126	144	13

We can note from these exhibits that:

- France, which is the fastest growing European TPM market, had the highest number of TPM users for their main system (9%) but only 7% of PC users.

- Although the UK is considered as the largest TPM market in Europe, only 6% of users interviewed in the UK contract maintenance to TPMs for their main system. As shown in Exhibit V-3, however, 20% use TPM for their PCs.

- In Italy and Holland as well, TPM penetration for systems users was 5% of the total, but in Italy, 15% of PC users contracted maintenance from a TPM as opposed to 5% in Holland.

- In Sweden and Germany, where user resistance to TPM is the highest, TPM penetration is at 2% for systems and slightly higher for PCs (8% in Germany and 14% in Sweden).

B

Reasons for Using TPM

Users were asked to state the reason why they had chosen to use a TPM vendor. The most frequently mentioned reasons given by the respondents are shown in Exhibit V-4. The three most frequently mentioned reasons overall being cost, convenience, and efficiency.

It is interesting to note that although cost is mentioned most frequently by overall 45% of respondents, in the UK, the most developed TPM market in Europe, it is only the third most frequently mentioned item (under 25% of respondents). In France cost is the second most frequently mentioned item (38% of respondents).

The analysis shown in Exhibit V-4 clearly underlines the importance of such factors as convenience and efficiency to TPM users, particularly as TPM firms mature and are able to offer a more sophisticated level of service.

It should also be noted that only a minimal number of users cited single source maintenance as a reason for using TPM, 4% of the respondents. This is in direct conflict with the view of the vendors who, as was noted in Chapter III, often cited this as a major growth factor of their business. Vendors should carefully re-examine their marketing approach in the light of this analysis.

EXHIBIT V-4

REASONS FOR USING TPM
MINI/MAINFRAME USERS - EUROPE

	UK	France	West Germany	Italy	Sweden	Holland	Belgium	Norway	TOTAL*
Convenience	8	10	-	2	-	-	1	1	22
Cost	5	8	4	4	2	3	7	-	33
Single Source Maintenance	-	-	-	-	-	-	-	-	3
Efficiency	11	-	-	2	-	-	2	-	19
Other	8	2	1	-	-	-	2	2	8
Total No. of TPM Users Interviewed	21	20	5	7	2	5	9	2	71

* Multiple responses allowed since respondents may give more than one reason for using TPM.

C
Reasons for Not Using TPM

Exhibit V-5 shows the analysis of the reasons professed by respondents for non-use of TPM. The most frequently mentioned reasons cited were:

- Users are satisfied with the service provided by the manufacturer (73% of respondents).
- The user is unaware or has not been approached by TPM (18% of respondents).
- Users believe that manufacturers have a service advantage over a TPM (17% of respondents).

EXHIBIT V-5

REASONS FOR NOT USING TPM
MINI/MAINFRAME USERS - EUROPE

	UK	France	West Germany	Italy	Sweden	Holland	Belgium	Norway	TOTAL
Satisfied with Manufacturer	313	136	170	81	34	52	70	19	875
Mfctr. Service Advtge. over TPM	37	43	67	6	16	2	13	17	201
TPM Unable to Support S/W	28	4	-	3	1	-	12	-	48
Tied to Mfctr. by Contract	21	18	17	16	-	9	12	-	93
Financial Weakness of TPM	4	3	-	-	2	-	2	-	11
Unaware/Not Been Approached by TPM	18	34	44	35	20	14	31	23	219
Considered & Rejected TPM	16	10	1	7	10	7	7	5	57
Fear of Vendor Response	5	-	1	1	2	-	2	2	13
Other	6	18	9	22	19	20	9	19	122
Total No. of Non-TPM Users	359	205	218	122	72	93	86	43	1198

* Multiple responses allowed since respondents may give more than one reason for not using TPM.

In the UK, where, as has been commented before, the market for TPM is the most mature, a different profile, is exhibited. User satisfaction with the manufacturer is much higher (87% of respondents), the second most frequently mentioned item is the manufacturers' service advantage over TPM (10% of respondents). Not surprisingly, lack of awareness of TPM was only mentioned by 5% of the respondents and was only the fifth most frequently mentioned reason.

The fact that overall "lack of awareness" of TPM was the second most frequently mentioned factor indicates an opportunity for TPMs to market their services more aggressively. This apparent lack of awareness is most prominent in Norway (53% of respondents), Belgium (36% of respondents), Italy, and Sweden (just under 30% of respondents in each country).

In Italy it should be noted that very few of the Italian TPMs offer maintenance on CPUs. The relative immaturity of the TPM market in Italy and its concentration on the maintenance of PCs reveals that the opportunity exists for TPM vendors to consider extending the range of equipment supported.

A relatively small proportion of users (about 8%) are not using TPM because they are contractually tied to the manufacturer. Fear of vendor reaction, the perceived financial weakness of TPMs, and the inability of TPMs to support software were not considered by users as being important reasons for not using TPM. Interestingly, the TPM's inability to support software was relatively highly rated in Belgium (14%) and the UK (8%) against the total sample average of 4% of respondents.

D

Maintenance Price Satisfaction

Exhibit V-6 shows the analysis of TPM user satisfaction with pricing and the level of importance that is attached to it.

It can be seen that, overall, users attach considerable importance to pricing, which relates to the frequency of mention of price as an important consideration for TPM. The average ratings in Exhibit V-6 are based on a scale of 0 to 10, where 0 represents not important at all or not satisfied at all and 10 represents very important or very satisfied.

Not surprisingly, the results show that users consider pricing as an important issue but are not completely satisfied with the price that they pay for maintenance. This can be attributed to user expectation of high cost savings when using TPM.

EXHIBIT V-6

AVERAGE USER SATISFACTION AND IMPORTANCE RATINGS* WITH PRICE OF MAINTENANCE

(Sample sizes Shown in Brackets)

	SATISFACTION RATING	IMPORTANCE RATING
UK	6.8 (21)	7.6 (20)
France	7.8 (19)	9.5 (19)
Germany	6.3 (4)	8.5 (4)
Italy	7.7 (7)	8.6 (7)
Sweden	3.0 (2)	9.5 (2)
Holland	7.0 (5)	7.6 (5)

* Ratings on a scale of 0-10 where 0 = Not Satisfied/Important; 10 = Very Satisfied/Important

Standard Error: 0.18

VI

Conclusions and Recommendations

VI

Conclusions and Recommendations

INPUT's research shows that the TPM market continues to expand overall, but the rate of increase varies considerably between countries. Growth in the more mature markets has already slowed, notably in the UK where the 1986-87 growth rate has been assessed at 18% against a European average of 25%. Overall, INPUT is forecasting declining growth for all European country markets over the five-year forward period 1987 - 1992 which will average out at 18% per annum.

The implications of this declining growth for TPM vendors are clear. The market will become even more competitive, the consolidation of the larger companies through acquisitions or mergers will continue, manufacturers will be increasingly active in protecting their revenue base, and small marginally profitable TPM operations will be squeezed.

It is also likely that some substantial and financially strong new players will enter the market where the acquisition or development of a TPM division will have commercial synergy with its other operations. These organizations could include major software houses, non-computer manufacturing or engineering companies, and companies involved in general plant maintenance, building maintenance, and security.

Consequently, TPM vendors must pay careful attention to their competitive position. INPUT's research reveals that most TPM vendors do not currently view any competition as a major inhibitor to their future growth. They do, however, see more of a threat from other TPM companies than from the manufacturers.

Interestingly, TPM vendors do not consider that manufacturers will in general be successful in making a large impact on the market and that

threat they pose is a short-term one. The justification of this view is given as the belief that the "independence" of the TPM is their vital unique competitive differentiation.

INPUT considers that this view is complacent and that TPM companies must be alert to tightening competitive conditions as market growth slows and manufacturers become much more active to protect their service revenue base.

Manufacturers are already reacting to the threat of TPM, and they are doing this both defensively and pro-actively. Defensive actions include such moves as warranty period extension, re-bundling, and the control of the availability of spare parts. Their pro-active stance is represented by the development of "independent maintenance" activities. All of these actions are likely to have a considerable impact on TPM vendors. One important aspect of competitive evaluation that TPM vendors should pay attention to is that of their positioning in respect of their user community. INPUT's research indicates that there are still conflicts that exist between the user and vendor view of TPM selection criteria.

The lack of awareness of TPM amongst some users and the perception of the manufacturers' service advantage are areas to be addressed by increased marketing activity. The generally held vendor view that single-source maintenance is the key driver appear to be in conflict with users who reflect such attributes as cost, convenience, and efficiency as being the most important factors. TPM vendors are recommended to study their marketing approach to maximize market penetration.

As the TPM market appears to be consolidating, it is apparent that each vendor must have a clear set of strategic goals to carry it through the next five years. This is essential since it will determine the identity of the TPM in the eyes of the customer base, help establish an image, and assist in the selection of market and acquisition targets and the sequence in which they must be pursued.

Quality of service has always been and will continue to be the backbone of the TPM reputation and growth of repeat business and word-of-mouth contracts. Ultimately, however, the success of a TPM will be dependent on the marketing strength that can be brought to bear in defining, packaging, and pricing new services to new and existing customers and responding to the competitive challenges of other TPMs.

Prospective customers will always be impressed by the personal attention received from the vendor:

- Frequently, the successful vendor will have taken the time and trouble to evaluate independently the need for the services requested and to indicate, in its response, those that are not necessary to the customer.

- Getting to know the customer in-depth is as valuable as a clear demonstration of technical competence and ability. In many instances, if the customer can be made to feel comfortable with the vendor and his capabilities, price can almost be eliminated from the center of consideration.

In summary, INPUT recommends TPMs to carefully evaluate the following commercial and marketing policies. No strategy can be proposed that guarantees success but lack of consideration of the changing marketing dynamics of TPM will exact a heavy penalty over the next few years as the industry "shakes-out":

- The development of a strong marketing and sales capability. User needs and requirements must be carefully tracked. Well-targeted and well-conceived service offerings must be prepared to respond to the changes in the user community and professional salesmanship employed to secure the business.

- Further, the development of the capability to promote the marketing message effectively. The promotion of a good image of stability, competence, and high quality will be extremely important.

- The development of "damage limitation" strategies in respect of aggressive marketing moves by manufacturers. These could include avoiding conflict with manufacturers' aims wherever possible or at the opposite extreme actually seeking out cooperative arrangements, in particular the development of the product manufacturer market. This market will develop to support commodity manufacturers who for reasons of geographical coverage or other commercial reasons will seek a third-party to maintain their equipment in the field.

- Cost control will be a high priority in an increasingly competitive market where users will continue to place emphasis on the price of maintenance. TPMs must develop, implement, and refine cost containment measures. TPMs will have to set out to achieve financial objectives, for example, improving sales productivity by 10% per annum and service productivity by 5% per annum.

Overall TPM vendors must develop a clear commercial strategy that fully recognizes the changing industry dynamics. Some key strategies for consideration will include:

- Selecting "end user" or "product manufacturer" markets.
- Achieving critical market position through acquisition or merger.
- Extending the service offering into non-computer equipment areas that still retain commercial synergy.
- Adapting a niche strategy.
- Develop the non-hardware maintenance aspects of the service offering in professional services, training, education, and consultancy. Systems software support should be integrated into the services offered for each category of hardware. The absence or presence of the capability to offer systems software support may well be a deciding factor in competitive bids.

A

Appendix: Profiles of French TPMs

COMPANY PROFILE

COUNTRY	France
COMPANY	Control Data
ADDRESS	27 Cours des Petites Ecuries Lognes France
TELEPHONE	(1) 60-05-92-02

COMPANY INFORMATION	
Number of Service Centres	6 + 30 Repair Centres
Number of Employees in TPM	50
Number of Engineers	50
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	FF 56 m
- Target 1987	FF 70 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM
Minis	IBM
Business PCs	IBM, Compaq, Zenith, Forum
Peripherals	IBM, Compaq, Zenith, Forum
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	France
COMPANY	Eurotech Services
ADDRESS	Parc du Colombier Rue Jules Saulnier 93200 Saint Denis France
TELEPHONE	(1) 48-09-23-23

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	100
Number of Engineers	50
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	FF 17 m
- Target 1987	FF 38 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Bytex, Gandalf
Business PCs	All Major Brands
Peripherals	All Major Brands
Other Equipment	Bytex & Gandalf Telecomms Equipment
NOTES	

COMPANY PROFILE

COUNTRY	France
COMPANY	Infomat Grand Sud-Ouest
ADDRESS	11, Boulevard des Recollets 31400 Toulouse France
TELEPHONE	(61) 53-51-59

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	-
Number of Engineers	6
Field Engineers	3
Bench Engineers	3
Turnover Derived from TPM	
- Actual/Expected 1986	-
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	-
Peripherals	-
Other Equipment	EFT-PoS Terminals

NOTES

COMPANY PROFILE

COUNTRY	France
COMPANY	MétroService
ADDRESS	77-101 Avenue du Vieux Chemin St. Denis BP102 92232 Gennevilliers Cédex France
TELEPHONE	(1) 47-99-73-19

COMPANY INFORMATION	
Number of Service Centres	20
Number of Employees in TPM	223
Number of Engineers	75
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	FF 67 m
- Target 1987	FF 100 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	All Major Brands
Peripherals	All Major Brands
Other Equipment	Network Maintenance

NOTES

COMPANY PROFILE

COUNTRY	France
COMPANY	MIS
ADDRESS	17 Boulevard Ney 75018 Paris France
TELEPHONE	(1) 40-38-36-34

COMPANY INFORMATION	
Number of Service Centres	38
Number of Employees in TPM	220
Number of Engineers	210
Field Engineers	180
Bench Engineers	30
Turnover Derived from TPM	
- Actual/Expected 1986	FF 36 m
- Target 1987	FF 60 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM, Honeywell-Bull
Minis	IBM
Business PCs	All Major Brands
Peripherals	All Major Brands
Other Equipment	EFT-PoS Equipment

NOTES

COMPANY PROFILE

COUNTRY	France
COMPANY	Microma
ADDRESS	34, Avenue du Président Wilson 93212 La Plaine St. Denis France
TELEPHONE	(1) 48-09-22-13

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	15
Number of Engineers	20
Field Engineers	15
Bench Engineers	5
Turnover Derived from TPM	
- Actual/Expected 1986	-
- Target 1987	-
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	IBM, Honeywell-Bull, Philips, Texas Instruments, Goupil
Peripherals	IBM, Honeywell-Bull, Philips, Texas Instruments, Goupil
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	France
COMPANY	Service Informatique Assistance
ADDRESS	18, Rue de l'Avenir 93800 Epinay-sur-Seine France
TELEPHONE	(1) 48-22-92-52

COMPANY INFORMATION	
Number of Service Centres	3
Number of Employees in TPM	35
Number of Engineers	30
Field Engineers	25
Bench Engineers	10
Turnover Derived from TPM	
- Actual/Expected 1986	FF 18 m
- Target 1987	FF 24 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Texas Instruments
Business PCs	All Major Brands
Peripherals	Control Data, NEC
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	France
COMPANY	SMS International France
ADDRESS	9-15 Avenue Paul Doumer 92508 Rueil-Malmaison France
TELEPHONE	(01) 47-08-65-04

COMPANY INFORMATION	
Number of Service Centres	20
Number of Employees in TPM	160
Number of Engineers	90
Field Engineers	80
Bench Engineers	10
Turnover Derived from TPM	
- Actual/Expected 1986	FF 35 m
- Target 1987	FF 65 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM
Minis	IBM and IBM Plug Compatibles, DEC, WANG, HP
Business PCs	IBM, DEC, WANG, HP, and Other Major manufacturers
Peripherals	
Other Equipment	

NOTES

COMPANY PROFILE

COUNTRY	France
COMPANY	Spectral
ADDRESS	22, Avenue des Nations Z.1. Paris Nord 11 93420 Villepinte France
TELEPHONE	(1) 48-63-23-00

COMPANY INFORMATION	
Number of Service Centres	26
Number of Employees in TPM	210
Number of Engineers	120
Field Engineers	85
Bench Engineers	35
Turnover Derived from TPM	
- Actual/Expected 1986	FF 78.6 m
- Target 1987	FF 100.0 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM 34/36, Altos, Gispac 4000; Pertec, Ultimate
Business PCs	IBM, Honeywell-Bull, Gistral, Donatec, Sharp
Peripherals	All Major Brands
Other Equipment	EFT-POS Terminals

NOTES

B

Appendix: Profiles of Italian TPMs

COMPANY PROFILE

COUNTRY	Italy
COMPANY	Ciesse Italia Spa
ADDRESS	Via Venezia, 67/6 Padova Italy
TELEPHONE	(049) 776-588

COMPANY INFORMATION	
Number of Service Centres	25
Number of Employees in TPM	150
Number of Engineers	80
Field Engineers	70
Bench Engineers	10
Turnover Derived from TPM	
- Actual/Expected 1986	It. Lira 17 bn
- Target 1987	It. Lira 25 bn

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM 43XX
Minis	IBM 34/36/38
Business PCs	IBM
Peripherals	-
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	Italy
COMPANY	Econocom Italia
ADDRESS	Via Pasteor, 65 00142 Roma Italy
TELEPHONE	(06) 592-1495

COMPANY INFORMATION	
Number of Service Centres	2
Number of Employees in TPM	40
Number of Engineers	40
Field Engineers	8
Bench Engineers	32
Turnover Derived from TPM	
- Actual/Expected 1986	It. Lira 17 bn
- Target 1987	It. Lira 19 bn

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM 4381
Minis	IBM 34/36/38
Business PCs	IBM
Peripherals	IBM
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	Italy
COMPANY	Eurotech Italia Spa
ADDRESS	Milanofiori Strada 7 Palazzo T3 Rozzano - Milano
TELEPHONE	(02) 822-70

COMPANY INFORMATION	
Number of Service Centres	11
Number of Employees in TPM	65
Number of Engineers	45
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	It. Lira 4.7 bn
- Target 1987	It. Lira 5.7 bn

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM, Convergent Technolgy, Texas Instruments, Olivetti
Business PCs	IBM, Convergent Technology, Texas Instruments, Olivetti
Peripherals	UDUS, Printers, Terminals
Other Equipment	Telex Automation, Telecomms Equipment

NOTES

COMPANY PROFILE

COUNTRY	Italy
COMPANY	Ibimaint Spa
ADDRESS	MilanoFiori Palazzo E/4 Milano Italy
TELEPHONE	(02) 8224

COMPANY INFORMATION	
Number of Service Centres	24
Number of Employees in TPM	200
Number of Engineers	-
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	It. Lira 20 bn
- Target 1987	It. Lira 35 bn

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM 34/36/38, Olivetti
Business PCs	IBM, Olivetti
Peripherals	All Major Brands
Other Equipment	-

NOTES

In July 1987, IBIMAINT was acquired by Olivetti.

COMPANY PROFILE

COUNTRY	Italy
COMPANY	IN.SI.DE Maintenance
ADDRESS	Via G. di Vittorio, 7 42100 Reggio Emilia Italy
TELEPHONE	(0522) 51-32-29

COMPANY INFORMATION	
Number of Service Centres	20
Number of Employees in TPM	-
Number of Engineers	-
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	It. Lira 300 bn
- Target 1987	It. Lira 1.5 bn

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM 34/36
Business PCs	IBM, All Major Brands
Peripherals	IBM, All Major Brands
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	Italy
COMPANY	RESTORE S.r.L.
ADDRESS	Strada per Cermusca, 1 20060 Bussero (Milano) Italy
TELEPHONE	(02) 950-38-112

COMPANY INFORMATION	
Number of Service Centres	2
Number of Employees in TPM	20
Number of Engineers	20
Field Engineers	17
Bench Engineers	3
Turnover Derived from TPM	
- Actual/Expected 1986	It. Lira 2.5 bn
- Target 1987	It. Lira 3.0 bn
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM 34/36
Business PCs	IBM
Peripherals	Centronics, Tally
Other Equipment	-

NOTES

C

Appendix: Profiles of Dutch TPMs

COMPANY PROFILE

COUNTRY	Netherlands
COMPANY	Business Solutions International
ADDRESS	Vijften Morgen, 5 P.O. Box 620 3900 AP Veenendaal Holland
TELEPHONE	(08385) 23190

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	-
Number of Engineers	65
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	Fl. 6m*
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC
Business PCs	DEC, Major Brands
Peripherals	DEC, Major Brands
Other Equipment	-

NOTES *INPUT estimate

COMPANY PROFILE

COUNTRY	Netherlands
COMPANY	DTC Service
ADDRESS	Huis ter Heideweg, 24 P.O. Box 2 3700 AA Zeist Holland
TELEPHONE	(03404) 27222

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	55
Number of Engineers	33
Field Engineers	23
Bench Engineers	10
Turnover Derived from TPM	
- Actual/Expected 1986	Fl. 25m*
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC, Qantel, Stratus
Business PCs	IBM, Philips, Olivetti
Peripherals	All Major Brands
Other Equipment	-

NOTES *INPUT estimate

COMPANY PROFILE

COUNTRY	Netherlands
COMPANY	DPCE Holland
ADDRESS	Zaagmoleslaan, 12 3447 GS WOERDEN Holland
TELEPHONE	(03480) 10280

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	100
Number of Engineers	80
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	Fl. 11m*
- Target 1987	-
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	Honeywell-Bull, IBM, NAS, Unisys
Minis	DEC
Business PCs	IBM, HP
Peripherals	All Major Brands
Other Equipment	Modems, Plotters

NOTES *INPUT estimate

COMPANY PROFILE

COUNTRY	Netherlands
COMPANY	Geveke Electronics
ADDRESS	Donauweg 10 1043 AJ Amsterdam Holland
TELEPHONE	(020) 586-1420

COMPANY INFORMATION	
Number of Service Centres	5
Number of Employees in TPM	230
Number of Engineers	200
Field Engineers	150
Bench Engineers	50
Turnover Derived from TPM	
- Actual/Expected 1986	Fl. 40m*
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM, MAI
Business PCs	IBM, VISA, All Major Brands
Peripherals	All Major Brands
Other Equipment	Data Communications Equipment

NOTES *INPUT estimate

COMPANY PROFILE

COUNTRY	Netherlands
COMPANY	Infoproducts Holland bv.
ADDRESS	Duitslandweg 7 P.O. Box 53 2410 AB Bodegraven Holland
TELEPHONE	(01726) 19346

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	28
Number of Engineers	-
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	Fl. 23 m*
- Target 1987	-
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	IBM
Peripherals	All major Brands
Other Equipment	-

NOTES *INPUT estimate

D

Appendix: Profiles of Swedish TPMs

COMPANY PROFILE

COUNTRY	Sweden
COMPANY	Databolim
ADDRESS	Box 115 64 S-10061 Stockholm Sweden
TELEPHONE	(08) 714-00-00

COMPANY INFORMATION	
Number of Service Centres	14
Number of Employees in TPM	125
Number of Engineers	105
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	SK 10 m
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Prime, Convex, Modcomp, Bitronics
Business PCs	DDF (Own Brand)
Peripherals	Fujitsu, Dataproducts, Printonix
Other Equipment	CDC Disk Drives

NOTES

COMPANY PROFILE

COUNTRY	Sweden
COMPANY	Ericsson Radio Systems
ADDRESS	Box 2034 17202 Sundbyberg Sweden
TELEPHONE	(08) 757-9400

COMPANY INFORMATION	
Number of Service Centres	29
Number of Employees in TPM	300
Number of Engineers	100
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	SK 60 m
- Target 1987	SK 85 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM, DEC, Data General
Business PCs	IBM, Ericsson, ABC, IMC, Sanyo, All Other Major Brands
Peripherals	IBM, Ericsson, ABC, IMC, Sanyo, All Other Major Brands
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	Sweden
COMPANY	Telub
ADDRESS	Box 278 35105 Vaxjo Sweden
TELEPHONE	(0470) 71700

COMPANY INFORMATION	
Number of Service Centres	17
Number of Employees in TPM	220
Number of Engineers	185
Field Engineers	165
Bench Engineers	20
Turnover Derived from TPM	
- Actual/Expected 1986	SK 110 m
- Target 1987	SK 132 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC, Data General, IBM
Business PCs	-
Peripherals	All Major Brands
Other Equipment	-
NOTES	

E

Appendix: Profiles of UK TPMs

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Advanced Technology Maintenance Ltd.
ADDRESS	21, Bristol Road Greenford Middlesex UB6 8UP U.K.
TELEPHONE	(01) 578-9222

COMPANY INFORMATION	
Number of Service Centres	10
Number of Employees in TPM	60
Number of Engineers	60
Field Engineers	45
Bench Engineers	15
Turnover Derived from TPM	
- Actual/Expected 1986	£2.0 m
- Target 1987	£2.5 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC
Business PCs	IBM, Compaq, Olivetti, Apple, DEC
Peripherals	Most Makes of Terminals
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Anderson Jacobson
ADDRESS	752 Deal Avenue Slough Berks S11 4SJ U.K.
TELEPHONE	(0753) 821021

COMPANY INFORMATION	
Number of Service Centres	2
Number of Employees in TPM	7
Number of Engineers	6
Field Engineers	6
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	£500 k
- Target 1987	£600 k

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	IBM, Compaq, Anderson Jacobson
Peripherals	IBM, Olivetti, Epson, Anderson Jacobson
Other Equipment	Modems & Comms Equipment, Pascal, Plessey, Anderson Jacobson

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Bell Technical Services
ADDRESS	13 Mount Road Hanworth Feltham Middlesex
TELEPHONE	(01) 898-9631

COMPANY INFORMATION	
Number of Service Centres	7
Number of Employees in TPM	330
Number of Engineers	260
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	£10 m
- Target 1987	£11 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC, Data General, CCM, IN2
Business PCs	IBM, Major Manufacturers
Peripherals	VDUs, Printers, Plotters
Other Equipment	Disk Drives, Retail Systems, Telex, Facsimile

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	CIL Engineering Ltd.
ADDRESS	2 Plover Close Interchange Park Newport Pagnell Milton Keynes MK16 9PP
TELEPHONE	(0908) 61-29-82

COMPANY INFORMATION	
Number of Service Centres	4
Number of Employees in TPM	70
Number of Engineers	31
Field Engineers	25
Bench Engineers	6
Turnover Derived from TPM	
- Actual/Expected 1986	£1.1 m
- Target 1987	*

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	Unisys, Convergent Technology
Minis	Unisys, Convergent Technology
Business PCs	Unisys, Convergent Technolgy, IBM
Peripherals	Fujitsu, Brother, Qume, Epson
Other Equipment	-

NOTES

* CIL is 50% owned by DPCE.

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Compact 3000 Ltd.
ADDRESS	The Limes High Holborn Sedgley-Dudley West Midlands D43 ISU
TELEPHONE	(0902) 88-00-88

COMPANY INFORMATION	
Number of Service Centres	2
Number of Employees in TPM	60
Number of Engineers	16
Field Engineers	16
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	£625 k
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Data General
Business PCs	IBM, Apricot
Peripherals	Printers & Terminals
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Computeraid Services
ADDRESS	21 Invincible Road Farnborough Hants GU14 7BR U.K.
TELEPHONE	(0252) 54-88-88

COMPANY INFORMATION	
Number of Service Centres	11
Number of Employees in TPM	200
Number of Engineers	130
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	£4.5 m
- Target 1987	£7.0 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC, Wang
Business PCs	IBM, Compaq, Olivetti, Televideo, Future
Peripherals	Printers
Other Equipment	PoS, Thorn, Comms Equipment, MicroLogic, NCR, Olivetti
NOTES	

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Computer Field Maintenance Ltd.
ADDRESS	Excell House, Trust Industrial Estate Wilbury Way, Hitchin, Herts SG4 OUZ U.K.
TELEPHONE	(0462) 421511

COMPANY INFORMATION	
Number of Service Centres	22
Number of Employees in TPM	554
Number of Engineers	365
Field Engineers	320
Bench Engineers	45
Turnover Derived from TPM	
- Actual/Expected 1986	£15 m
- Target 1987	£22 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM
Minis	DEC, Aplpha Micro, BCI, CA, HP, DMS, Honeywell-Bull, IBM, Stratus, Systine, TI, Wang, Xerox
Business PCs	ACT, Acorn, Commodore, Compaq, Cromemco, DEC, Diablo, IBM, ICL, LSI, North Star, Horizon, Olivetti, Rair, Seiko, STC, Televideo, Torch, Wang
Peripherals	All Major Brands

NOTES As of January 1987, the third-party maintenance operations of CFM & SMS (UK) Ltd. were merged.

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Computer Peripheral Maintenance
ADDRESS	Alloy House 5, Mercian Close Cirencester - Glos GL7 1LT U.K.
TELEPHONE	(0285) 69806

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	13
Number of Engineers	10
Field Engineers	-
Bench Engineers	10
Turnover Derived from TPM	
- Actual/Expected 1986	£250 k
- Target 1987	£500 k

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	-
Peripherals	-
Other Equipment	Disk Drives & Winchester Disks

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Computer Repair Centre Ltd.
ADDRESS	Thame Park Industrial Estate Thame Oxon OX9 3SJ U.K.
TELEPHONE	(084) 421-6861

COMPANY INFORMATION	
Number of Service Centres	5
Number of Employees in TPM	30
Number of Engineers	30
Field Engineers	10
Bench Engineers	20
Turnover Derived from TPM	
- Actual/Expected 1986	£1.75 m
- Target 1987	£2.50 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	IBM, Apricot, Victor, Olivetti, Zenith, Other Major Manufacturers
Peripherals	Printers: Brother, NEC, Epson, Toshiba
Other Equipment	STEP & Motorola Development Systems, PERQ Workstation

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Computer Terminal Services
ADDRESS	Bryant Road Strood Kent U.K.
TELEPHONE	(0634) 72-43-33

COMPANY INFORMATION	
Number of Service Centres	4
Number of Employees in TPM	35
Number of Engineers	30
Field Engineers	23
Bench Engineers	7
Turnover Derived from TPM	
- Actual/Expected 1986	£0.75 m
- Target 1987	£1.00 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	Epson
Peripherals	Epson, Qume, OKI, Microwave, Newbury, Wyse, Diablo, Televideo, DRE, Lear Siegler, Freedom, Juki
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	DDT Maintenance
ADDRESS	58-64 Northfields Road Kings Norton Birmingham B30 1JH U.K.
TELEPHONE	(021) 458-3205

COMPANY INFORMATION	
Number of Service Centres	13
Number of Employees in TPM	245
Number of Engineers	160
Field Engineers	120
Bench Engineers	40
Turnover Derived from TPM	
- Actual/Expected 1986	£6.5 m
- Target 1987	£7.5 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	End 1987: IBM S36
Business PCs	All Major Manufacturers
Peripherals	All major Manufacturers
Other Equipment	Communications Equipment, Networks, Software Support

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	DPCE (UK) Ltd.
ADDRESS	Cumberland House Old Bracknell Lane West Bracknell Berks RG12 4AE, U.K.
TELEPHONE	(0344) 485-666

COMPANY INFORMATION	
Number of Service Centres	32
Number of Employees in TPM	350
Number of Engineers	290
Field Engineers	275
Bench Engineers	15
Turnover Derived from TPM	
- Actual/Expected 1986	£12 m
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	All Major Manufacturers
Minis	All Major Manufacturers
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	Process Control Equipment

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Data Logic Ltd.
ADDRESS	Queens House East Greenhill Way Harrow - Middlesex HA1 1YR U.K.
TELEPHONE	(01) 863-0383

COMPANY INFORMATION	
Number of Service Centres	19
Number of Employees in TPM	-
Number of Engineers	120
Field Engineers	102
Bench Engineers	18
Turnover Derived from TPM	
- Actual/Expected 1986	£6.8 m
- Target 1987	£7.2 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC, IBM, Raytheon
Business PCs	All Major Manufacturers
Peripherals	VDUs, Printers
Other Equipment	Comms Equipment, Networks

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Datapro Electronics
ADDRESS	Premier House Shoreham Airport West Sussex U.K.
TELEPHONE	(0273) 46-46-86

COMPANY INFORMATION	
Number of Service Centres	2
Number of Employees in TPM	10
Number of Engineers	10
Field Engineers	8
Bench Engineers	2
Turnover Derived from TPM	
- Actual/Expected 1986	£0.75 m
- Target 1987	£1.00 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	Altos, IBM, Tandon, Apricot, CT
Peripherals	Epson, OKI, Canon
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Digital Computer Services Ltd.
ADDRESS	Network House Oxford Road Denham - Uxbridge Middlesex UB9 4DN
TELEPHONE	(0895) 74141

COMPANY INFORMATION	
Number of Service Centres	5
Number of Employees in TPM	47
Number of Engineers	38
Field Engineers	–
Bench Engineers	–
Turnover Derived from TPM	
- Actual/Expected 1986	£2.1 m
- Target 1987	£3.6 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	
Minis	DEC, IBM, WANG
Business PCs	IBM, DEC, Compaq, Tandon, Tandem, WANG, Olivetti
Peripherals	VDU's, Moniters, Printers
Other Equipment	Communications Equipment, Modems, Multiplexers

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Extel Systems Support
ADDRESS	House park Kings Langley Herts WD4 8LZ U.K.
TELEPHONE	(09277) 66144

COMPANY INFORMATION	
Number of Service Centres	25
Number of Employees in TPM	370
Number of Engineers	250
Field Engineers	200
Bench Engineers	50
Turnover Derived from TPM	
- Actual/Expected 1986	£10.5 m
- Target 1987	£12.0 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	ICL, IBM
Minis	ICL, Zilog, IBM
Business PCs	Most Leading Manufacturers
Peripherals	VDS, Terminals, Printers
Other Equipment	Network Systems: Norell, DMS Minet, IBM, Token King

NOTES

In Dec. 1986, Extel acquired Mills Associates.

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Kode Computers Ltd.
ADDRESS	Kode House Drakes Way Greenbridge Swindon, Wiltshire SN3 3JL
TELEPHONE	(0793) 511345

COMPANY INFORMATION	
Number of Service Centres	8
Number of Employees in TPM	163
Number of Engineers	110
Field Engineers	80
Bench Engineers	30
Turnover Derived from TPM	
- Actual/Expected 1986	£4.9 m
- Target 1987	£5.2 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Pertee, Comart
Business PCs	All Major Manufacturers
Peripherals	VDUs, Printers, Terminals
Other Equipment	Telecomms, Telex, Facsimile, Disk Drive Repair (Class 10 Clean Room)

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Mainstay Computer Cover Ltd.
ADDRESS	Mainstay House 10 Eden Place Cheadle Cheshire
TELEPHONE	(061) 428-0880

COMPANY INFORMATION	
Number of Service Centres	10
Number of Employees in TPM	170
Number of Engineers	110
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	£3.6 m
- Target 1987	£6.8 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM and compatibles
Minis	IBM and compatibles
Business PCs	IBM and compatibles
Peripherals	
Other Equipment	Telecomms, Networks

NOTES Mainstay also offers: a) parts division support to TPM, b) separate installation force for site survey/electronic instruments/hot staging/equipment installation.

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Memory Maintenance Ltd.
ADDRESS	16 Westmead Industrial Estate Westlea Swindon Wiltshire SN5 7YT
TELEPHONE	(0793) 61-69-99

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	41
Number of Engineers	34*
Field Engineers	–
Bench Engineers	30
Turnover Derived from TPM	
- Actual/Expected 1986	£872 m
- Target 1987	£ 1.3 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	
Minis	
Business PCs	
Peripherals	Ampex, Atasi, Bull, CMI, IMI, Microscience, Miniscribe, NEC, Rodime, Seagate, Shugart, Teac, Texas, Tandon, Vertex, YEData
Other Equipment	

NOTES *Includes 4 Senior Engineers.

The company undertakes the repair of Winchester and floppy disk drives both in warranty on behalf of manufacturers and out of warranty for users. The facility has two Class 100 Clean rooms and repairs drives from customers in the UK and Europe.

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Micro System Maintenance Ltd.
ADDRESS	15 Westmead Industrial Estate Westlea Swindon Wiltshire SN5 7YS
TELEPHONE	(0793) 61-68-88

COMPANY INFORMATION	
Number of Service Centres	8
Number of Employees in TPM	75
Number of Engineers	65*
Field Engineers	45
Bench Engineers	11
Turnover Derived from TPM	
- Actual/Expected 1986	£1.3 m
- Target 1987	£1.7 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	
Minis	
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	All Major Manufacturers

NOTES *Includes 9 Senior Engineers

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Q-Com Maintenance
ADDRESS	Monaco House Bristol Street Birmingham B5 7AS U.K.
TELEPHONE	(021) 622-7165

COMPANY INFORMATION	
Number of Service Centres	3
Number of Employees in TPM	16
Number of Engineers	12
Field Engineers	10
Bench Engineers	2
Turnover Derived from TPM	
- Actual/Expected 1986	£0.20 m
- Target 1987	£0.35 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	PDP 11/-
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	Graphics Displays: Cambridge Graphics, Aydin, Coeron, Taxan, Cherry Plotters: HP, Houston, TDS

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Quest International Computer Services
ADDRESS	School Lane Chandlers Ford Hampshire
TELEPHONE	(0703) 266321

COMPANY INFORMATION	
Number of Service Centres	6
Number of Employees in TPM	102
Number of Engineers	87
Field Engineers	71
Bench Engineers	16
Turnover Derived from TPM	
- Actual/Expected 1986	£3.2 m
- Target 1987	£3.6 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Nova, Computer Automation, DEC, Quest
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	Controllers & Subsystems, CAD/ Graphics Systems, Comms Equip, Robots, Optical Devices

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Quest International Computer Services
ADDRESS	School Lane Chandlers Ford Hampshire
TELEPHONE	(0703) 266321

COMPANY INFORMATION	
Number of Service Centres	6
Number of Employees in TPM	102
Number of Engineers	87
Field Engineers	71
Bench Engineers	16
Turnover Derived from TPM	
- Actual/Expected 1986	£3.2 m
- Target 1987	£3.6 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Nova, Computer Automation, DEC, Quest
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	Controllers & Subsystems, CAD/ Graphics Systems, Comms Equip, Robots, Optical Devices

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Sanderson Computers Ltd.
ADDRESS	Parkway House Parkway Avenue Sheffield S9 4WA U.K.
TELEPHONE	(0742) 43-43-73

COMPANY INFORMATION	
Number of Service Centres	5
Number of Employees in TPM	12
Number of Engineers	12
Field Engineers	10
Bench Engineers	2
Turnover Derived from TPM	
- Actual/Expected 1986	£600 k
- Target 1987	£672 k

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	C. Itoh
Business PCs	Unisys, Apricot
Peripherals	VDUs: Qume; Printers: Mannesman
Other Equipment	Radio Hand Held Terminal: Script

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Sun Computer Maintenance
ADDRESS	4, Crown Business Centre Horton Road West Drayton Middlesex UB7 8HZ
TELEPHONE	(01) 890-1440

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	51
Number of Engineers	45
Field Engineers	6
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	£3.5 m
- Target 1987	£5.0 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM (4300 → 3090)
Minis	IBM Systems 34/36/38
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	Communications Equipment

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Sysmatic Ltd.
ADDRESS	Arkwright Road Reading Berks RG2 OLS
TELEPHONE	(0734) 311-011

COMPANY INFORMATION	
Number of Service Centres	5
Number of Employees in TPM	50
Number of Engineers	38
Field Engineers	30
Bench Engineers	8
Turnover Derived from TPM	
- Actual/Expected 1986	£900 k
- Target 1987	£2 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC
Business PCs	DEC, IBM
Peripherals	CDC, Data Products, Centronics, Fujitsu, DEC, ABLE
Other Equipment	Emulex, Lanpar, Kennedy, Cifer, Epson, Micom

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Systems Reliability Plc.
ADDRESS	400 Dallow Road Luton Bedfordshire LU1 1UR
TELEPHONE	(0582) 455-455

COMPANY INFORMATION	
Number of Service Centres	10
Number of Employees in TPM	110
Number of Engineers	85
Field Engineers	76
Bench Engineers	9
Turnover Derived from TPM	
- Actual/Expected 1986	£4.2 m
- Target 1987	£5.0 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	IBM, DEC, Alpha, Altos, Molecular
Business PCs	All Major Manufacturers
Peripherals	VDUs, Printers, Terminals
Other Equipment	MAG Tape Streamers, UCRs, Data Transfer, Telephone Mqmnt. Equipment, Comms Equipment
NOTES	

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	TPM Ltd.
ADDRESS	24, Langmoor Road Liphook Hants GU30 7NY U.K.
TELEPHONE	(0428) 72-38-19

COMPANY INFORMATION	
Number of Service Centres	1
Number of Employees in TPM	10
Number of Engineers	8
Field Engineers	7
Bench Engineers	1
Turnover Derived from TPM	
- Actual/Expected 1986	£300 k
- Target 1987	£500 k
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	-
Business PCs	IBM, Olivetti, Unisys, Ericsson, LSI-Octopus, Hinet, Digital Micro Systems
Peripherals	VDUs & Printers
Other Equipment	Repair Centre for IBM & Compatible Boards

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	TPM Europe Ltd.
ADDRESS	Unit 17, Central Trading Estate Staines Middlesex TW18 4VW U.K.
TELEPHONE	(0784) 65641

COMPANY INFORMATION	
Number of Service Centres	2
Number of Employees in TPM	25
Number of Engineers	20
Field Engineers	17
Bench Engineers	3
Turnover Derived from TPM	
- Actual/Expected 1986	N/A
- Target 1987	£1.5 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	All Major Manufacturers
Minis	All Major Manufacturers
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	United Kingdom
COMPANY	Vistec Ltd.
ADDRESS	Vistec House Nottingham Road Belper - Derbyshire DE5 1JQ U.K.
TELEPHONE	(077) 382-6811

COMPANY INFORMATION	
Number of Service Centres	12
Number of Employees in TPM	110
Number of Engineers	100
Field Engineers	85
Bench Engineers	15
Turnover Derived from TPM	
- Actual/Expected 1986	-
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC
Business PCs	DEC, IBM, Compaq, Tandon
Peripherals	Terminals: DEC, IBM
Other Equipment	Networks

NOTES

F

Appendix: Profiles of West German TPMs

COMPANY PROFILE

COUNTRY	West Germany
COMPANY	Bitronic Hardware Service GmbH
ADDRESS	Strahlenberger Weg 16 6000 Frankfurt a.m. 70 West Germany
TELEPHONE	(069) 618056

COMPANY INFORMATION	
Number of Service Centres	5
Number of Employees in TPM	42
Number of Engineers	34
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	DM 4.3 m
- Target 1987	DM 7.4 m

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	Cromemco, Convergent Tech, Datagraph
Business PCs	Minolta, Sharp, IBM, Tandon, Victor, Panasonic
Peripherals	All Major Manufacturers
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	West Germany
COMPANY	Dahlmann Datentechnik Vertieb GmbH
ADDRESS	Am Kirchhölzel 14 D-8032 Gräfeling/München West Germany
TELEPHONE	(089) 85-20-22

COMPANY INFORMATION	
Number of Service Centres	10
Number of Employees in TPM	20
Number of Engineers	14
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	DM 650 k
- Target 1987	DM 800 k

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	Nixdorf
Minis	Nixdorf
Business PCs	Nixdorf
Peripherals	Nixdorf
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	West Germany
COMPANY	Dataway
ADDRESS	Josefinestrasse 13 4000 Dusseldorf West Germany
TELEPHONE	(0211) 139080

COMPANY INFORMATION	
Number of Service Centres	6
Number of Employees in TPM	80
Number of Engineers	80
Field Engineers	24
Bench Engineers	56
Turnover Derived from TPM	
- Actual/Expected 1986	DM 20 m
- Target 1987	DM 29 m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM
Minis	IBM
Business PCs	IBM and Compatibles
Peripherals	IBM and Compatibles
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	West Germany
COMPANY	Xtec Computer Systems
ADDRESS	Niederurseler Allee 8-10 D-6236 Eschborn 1 West Germany
TELEPHONE	(06196) 70120

COMPANY INFORMATION	
Number of Service Centres	4
Number of Employees in TPM	70
Number of Engineers	50
Field Engineers	40
Bench Engineers	10
Turnover Derived from TPM	
- Actual/Expected 1986	-
- Target 1987	-

TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC
Business PCs	All Major Manufacturers
Peripherals	All Major Manufacturers
Other Equipment	-

NOTES

COMPANY PROFILE

COUNTRY	West Germany
COMPANY	I•S•S
ADDRESS	Mittelwendung, 9 D-2803 Bremen/Weyne West Germany
TELEPHONE	(04203) 400
COMPANY INFORMATION	
Number of Service Centres	7
Number of Employees in TPM	28
Number of Engineers	28
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	-
- Target 1987	-
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	-
Minis	DEC
Business PCs	DEC
Peripherals	-
Other Equipment	Disk Drives: Fujitsu, NEC CDC, FPC
NOTES	

COMPANY PROFILE

COUNTRY	West Germany
COMPANY	SMS International
ADDRESS	Frankenallee 260 6000 Frankfurt/Main 1 West Germany
TELEPHONE	(069) 730-4515
COMPANY INFORMATION	
Number of Service Centres	8
Number of Employees in TPM	65
Number of Engineers	41
Field Engineers	-
Bench Engineers	-
Turnover Derived from TPM	
- Actual/Expected 1986	DM 5 m
- Target 1987	-
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM
Minis	IBM
Business PCs	IBM and Compatibles
Peripherals	IBM and Compatibles
Other Equipment	-
NOTES	

COMPANY PROFILE

COUNTRY	West Germany
COMPANY	Wigo EDV Wartung GmbH
ADDRESS	Untergrasse 70 D-6097 Trebur 2 West Germany
TELEPHONE	(061) 477021

COMPANY INFORMATION	
Number of Service Centres	18
Number of Employees in TPM	70
Number of Engineers	70
Field Engineers	55
Bench Engineers	15
Turnover Derived from TPM	
- Actual/Expected 1986	DM 6 m
- Target 1987	DM 13m
TYPE OF EQUIPMENT MAINTAINED	
Mainframes	IBM
Minis	IBM
Business PCs	IBM
Peripherals	IBM
Other Equipment	-

NOTES

G

Appendix: Reconciliation of 1987 and 1986 Forecasts

G

Appendix: Reconciliation of 1987 and 1986 Forecasts

Each year, INPUT examines the forecasts it provided in previous years in the light of the new data obtained from:

- Current year research.
- Actual performance of vendors compared to forecasts.
- Reassessment of market drivers and inhibitors and long-term industry trends.

Exhibit G-1 shows the comparison of the forecasts made for the six largest individual country TPM markets in Europe in this report with those included in INPUT's 1986 TPM report.

EXHIBIT G-1

MARKET FORECAST RECONCILIATION

COUNTRY	1986 FORECAST OF '86 MARKET	1987 REPORT OF '86 MARKET	AAGR FORECAST IN '86 REPORT (1985 - 1991) (Percent)	AAGR FORECAST IN '87 REPORT (1986 - 1992) (Percent)
France	530 MFF	480 MFF	29	21
Italy	21 BLIRA	65 BLIRA	25	25
Netherlands	65MDFl.	100MDFl.	29	19
Sweden	145MSK	200MSK	19	19
UK	£130M	£140M	20	16
W. Germany	72MDM	95MDM	22	18